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EDWARD E. AZAR'S EARLY WARNING
MODEL - DOES IT WORK?

THESIS

Donald E. Childre, Jr.
Captain, USAF

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EDWARD E. AZAR'S EARLY WARNING
MODEL - DOES IT WORK?

THESIS

Presented to the Faculty of the School of Systems and
Logistics of the Air Force Institute of Technology
Air University

In Partial Fulfillment of the
Requirements for the Degree of
Master of Science in Logistics Management

Donald E. Childre, Jr., B.A.A.S.
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September 1990

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Donald E. Childre, Jr.

Table of Contents

	Page
Acknowledgements	ii
List of Figures	v
List of Tables	vi
List of Equations	vii
Abstract	viii
I. Introduction	1
Chapter Overview	1
General Issue	1
Problem Statement	2
Research Objectives	4
Limitation and Scope	5
Chapter Summary	5
II. Literature Review	6
Chapter Overview	6
Evolution of International Relations Study	6
Purpose and Use of a Prediction Model..	16
Characteristics of Azar's Early Warning Model of International Hostilities	18
Overview of Azar's Early Warning Model.	22
Assumptions Considered for Azar's Model	28
Chapter Summary	29
III. Methodology	31
Chapter Overview	31
General Description	31
Model Development	31
Database	33
Assign Ranking to the Data	34
Statistical Concepts	35
Perform Linear Regression on Azar's Model Variables	35
Validating the Model	35
Apply Ranked Data to the Model ...	36
Chapter Summary	37

	Page
IV. Analysis and Findings	38
Chapter Overview	38
Gathering Test Data	38
Data Analysis	39
Analysis of Test Data	43
Analysis of the Normal Relation Ranges.	45
Analysis of Research Questions	46
Investigative Questions	46
Model Sensitivity to Key Variables	49
Chapter Summary	50
V. Conclusions and Recommendations	52
Chapter Overview	52
Summary of Research Experiment	52
Discussion of Results	52
Policy Implications for Potential Users/Researchers	54
Recommendation for Refinement, Adaptation, or Revised Model	55
Chapter Summary	56
Appendix A: World Event Interaction Survey (WEIS) Code	57
Appendix B: Cross Referencing WEIS Data to Azar's 13-Point Scale	60
Appendix C: Key to Data Codes	63
Appendix D: Data for Argentina	64
Appendix E: Data for Great Britain	70
Appendix F: Data for Iran	77
Appendix G: Data for Iraq	80
Bibliography	83
Vita	85

List of Figures

Figure	Page
1. Basic Dyad	18
2. Generic NRR	20

List of Tables

Table	Page
1. Azar's 13-Point Interval Scale	25
2. Relative Region Values	26
3. Data Used in Iran Regression Model	40
4. Data Used in Iraq Regression Model	41
5. Data Used in Great Britain's Regression Model	43
6. Data Used in Argentina's Regression Model ...	44

List of Equations

Equation	Page
1. Dimension of Interaction Region I	24
2. Dimension of Interaction Region II	24
3. Azar's Basic Equation for Nation A	28
4. Azar's Basic Equation for Nation B	28
5. Prediction Model for Iran	32
6. Prediction Model for Iraq	32
7. Prediction Model for Great Britain	32
8. Prediction Model for Argentina	33
9. Regression Model for Iran's Constants	39
10. Regression Model for Iraq's Constants	40
11. Regression Model for Great Britain	41
12. Regression Model for Argentina	42

Abstract

This research determines if Edward E. Azar's Conflict Prediction Model could accurately predict the start of the Iran-Iraq War in September 1980 and/or the start of the Falkland Island War between Argentina and Great Britain in April 1982.

The research takes 24 months of data before the start of the two wars and separates the data into two 12 month segments. The first 12 months of data was scaled according to Azar's 13-Point Intensity Scale and input into the computer statistical program Statistix to try to produce constants that could be used on the second 12 months of data to try to predict the start of the two wars.

The database used was the United States Naval Academy's Worldwide Events Interaction Survey (WEIS) data. The data was transformed from the WEIS scale into the Azar scale and cross-referenced for consistency.

The statistical evaluation could not be done in this experiment because there were not enough data points in the first 12 months of data to provide the constants necessary to make a prediction using the second 12 months of data.

The conclusion was that the model may be useful if there is enough comprehensive data available to allow a statistical analysis, but that expert knowledge would have

to possessed by the user to be able to select the right kinds of data to use. Additionally, Azar's basic model might be useful in future study of researchers in the area of expert systems.

EDWARD E. AZAR'S EARLY WARNING MODEL - DOES IT WORK?

Chapter I. Introduction

Chapter Overview

This chapter presents the general issue and problem statement for the thesis. The research objectives including the hypothesis and investigative questions are given and the limitation and scope of the thesis are discussed.

General Issue

Conflict in the Middle East can be studied as far back as recorded history, however, Twentieth Century conflict in this area directly impacts the security of the United States and its allies by threatening the supply of oil to the Western industrialized nations. Walter J. Levy stated, ". . . in 1973 the United States found itself relatively powerless to counter the international oil cartel, whose actions could threaten future Western security interests" (8:115). Additionally, Middle East nations had formed alliances with both Eastern and Western bloc nations which had the potential of bringing the U.S. and the U.S.S.R. into a conflict. As an example of this type of alliance:

. . . th Soviets consummated, in May 1971, the Soviet-Egyptian Treaty of Friendship and Cooperation. Similar treaties were signed with India in August 1971 and with Iraq in April 1972. The Soviet treaty with Iraq was designed to . . . give the Soviets a strong

foothold in the Persian Gulf, with its abundant oil resources (8:95).

These treaties, which obligate the Soviets to provide assistance to their client states thus bringing the U.S. and the U.S.S.R. into a confrontation, makes early warning of potential conflicts in the Middle East particularly useful to the U.S. and its allies. The U.S. and/or its allies, armed with a reliable predictor of future conflict, could attempt to mediate these conflicts or take necessary actions to safeguard U.S. and/or allied interests or military forces. If the U.S. had had advance notice of the Egyptian invasion of Israel in 1973 there may have been time to mediate that conflict. However,

American intelligence failed to detect the war threat. On the day before the massive preemptive attack occurred, the CIA reported that a war was unlikely in the immediate sense (8:103).

Instead, the U.S. had to expend its own war readiness reserves to resupply Israel to allow them to push back the attacking Egyptians.

Problem Statement

The inability to forecast the onset of hostilities in the Middle East during the October 1973 War between Israel and the Egypt/Syria alliance put the United States into a crisis situation. A portion of the crisis situation was brought about by the escalation of the 1973 Arab-Israeli War, when

the Soviet Union threatened to unilaterally halt the advance of the Israeli forces into Arab territory (8:110). The United States responded to the Soviet threat by placing its conventional and nuclear military forces on alert worldwide (8:110). The resolution of this tense political situation was eventually resolved without direct military intervention by either the U.S. or U.S.S.R., but a critical mistake by either side could have been catastrophic. In order to avoid future standoffs of a similar nature with the Soviet Union it would be useful to be able to predict the onset of a war.

This thesis will attempt to show how one specific approach to conflict prediction may be useful under certain conditions. The specific model chosen was one based on research done, in 1970, by Edward E. Azar for predicting crisis escalation and reduction. He subsequently developed an early warning prediction model for international relations which he used to quantify relationships between the U.S. and the U.S.S.R., and between Israel and Egypt during the early 1970's.

This early warning model was chosen to investigate predicting the onset of war because, as will be shown later, it is a very simple model that can be used on easily obtainable data. If this model could predict the onset of hostilities it would be of interest to political and military decision makers.

The question this thesis asks is: Does Azar's Early Warning Model provide such a predictor? This thesis will test Azar's model against (available) data leading up the War between Iran and Iraq and the Falkland Island War between Great Britain and Argentina to demonstrate the value of Azar's Early Warning Model of International Hostilities.

Research Objectives

Hypothesis. Azar's Early Warning Model of International Hostilities provides a reliable (the model predicts the onset of a war during a specific month and the war does start during that month) forecast of the onset of war.

Investigative Questions.

1. How does Azar's Early Warning Model predict hostilities and what parameters does it use?
2. Does the model reliably (the war starts during the month the model predicted it would start) predict the onset of the Iran-Iraq war?
3. Does the model reliably (the war starts during the month the model predicted it would start) predict the onset of the Falkland Island War between Great Britain and Argentina?
4. What are the limitations of Azar's model?
5. Does analysis of the model predictions suggest any changes that could improve Azar's model, and if so, what would the changes be?

Limitation and Scope. The scope of this thesis will be restricted to Azar's Early Warning Model and to decide whether it might have been useful in predicting the onset of hostilities for two specific conflicts. The experiment will be limited to data from the two years preceding the Iran-Iraq War and the Falkland Island War between Great Britain and Argentina. Since the data will be obtained only from public sources its adequacy, completeness and reliability will always be open for criticism.

Chapter Summary

The utility of being able to predict the onset of war was discussed. Edward Azar's Early Warning Model of International Relations was chosen to try to predict the onset of war between Iran and Iraq, and the Falkland Island War between Great Britain and Argentina. Research questions were outlined that will show the usefulness of the model as a predictor. In chapter two, a literature review describing the evolution of international relations research and events modeling will be presented as well as the characteristics of Azar's model.

Chapter II. Literature Review

Chapter Overview

This chapter will discuss the issue of conflict prediction and its evolution in the social sciences during the last half of the Twentieth Century. It will discuss three models that international relations students can use to study why nations behave the way they do. It also compares two basic schools of thought on conflict prediction, one of transaction and the other on events/interaction. The advances in technology that enabled researchers to study data in these two schools will be discussed and particular attention will be given to the justification for using the available models. Lastly, a description of Azar's Early Warning Model of International Hostilities will be given.

Evolution of International Relations Study

International relations as defined by Professor Charles McClelland is:

. . . the study of interactions between certain kinds of social entities, including the study of relevant circumstances surrounding the interactions (12:18).

Studies on international relations can be found as far back as early Greek history. For example, ". . . the ancient Greek historian Thucydides' History of the Peloponnesian War is a classic treatise any student of

international relations can still read profitably" (7:1). Authors such as Machiavelli, Dante, Pierre Dubois, and William Penn also wrote very eloquently on the subject of international relations (international law to the writers of their time), but ". . . no systematic development, comparable to that in internal political theories of the state, occurred in international theory before World War I" (7:2).

Specifically in the United States, little was written on international relations prior to World War I because of the existing international political climate. The reason was that the U.S. was enjoying a relatively peaceful coexistence with the rest of the world, brought about by the near 100 years (1815-1914) of peace in Europe. Here peace is defined as none of the six great powers of Europe (Germany, Austria, Russia, France, Italy, and England) engaging in a war with one another (9:29). While there were some limited wars in Europe during this time, they were mainly territorial disputes that brought about the unification of Germany and Italy. The U.S. chose to distance itself from these minor conflicts and chose rather to settle some limited disputes around its own borders with Mexico in 1846 and Spain in 1898 (9:31).

Hartman and Wendzel state:

The United States engaged in very little war, in a century distinguished by its world-wide great power peacefulness, and what little Americans chose to fight they won hands down. These experiences were to have

distinct and important effects on subsequent American attitudes. Largely, the ability of the United States to "choose" its wars was intimately related both to the self-limits of American foreign policy and to the operation of the nineteenth-century balance of power . . . (9:32).

They go on to make the point that the United States' natural borders and the lack of any major powers on any of these borders provided them a sense of security and allowed them to avoid involvement in any European disputes (9:29).

This tendency toward isolationism and the relative state of incompetence of the State Department's overseas diplomats (diplomats were appointed by the party in power because of their support during the elections and not because of their qualifications) provided very little stimulation for writings or research during this period (9:27).

The emergence of the United States as a world power after World War I stimulated the study of international relations, but the ". . . ambiguities in American foreign policy and the trend toward isolationism during the 1920s and 1930s hindered the development of international relations as an intellectual discipline" (7:3).

After World War II, however, ". . . national political leaders and career public servants emphasized the importance of Americans assuming a world outlook to prevent a return to the isolationism of the inter-war period" (7:11). Writings in the late 1940s started referring to the power aspect of

international relations, and students of international relations understood that:

. . . what distinguishes modern history from medieval history is the predominance of the idea of power over the idea of right; the very term 'Power' to describe a state in its international aspect is significant; and the view of the man in the street, who is perhaps inclined to take it for granted that foreign politics are inevitably 'power politics,' is not without a shrewd insight (14:11).

While this idea was predominate for nearly a decade, in the early 1950s, international relations students began concentrating on why nations behave the way they do. Roger Hilsman stated that:

"The more 'scientifically' the analyst can answer the question, why do states behave the way they do?, the better positioned he or she is to do three things: (1) explain the past, (2) forecast the future, and (3) devise policies to influence the future or at least to prepare his or her country to adapt to what the future will bring (10:30).

Graham T. Allison described, in his Essence of Decision: Explaining the Cuban Missile Crisis, three models that exist for evaluating nation's behavior: 1) The Rational Actor Model, 2) Organizational Process Model, and 3) Governmental Politics Model.

The Classical Model or as Allison calls it the Rational Actor Model, is ". . . the attempt to explain international events by recounting the aims and calculations of nations or governments" (1:10). According to Allison, ". . . Nations act in situations of tempered antagonism and precarious

partnership, each nation's best choice depending on what it expects the other to do" (1:15). McClelland put it into more basic terms:

On meeting Actor B, Actor A may make an insulting remark; if Actor A does, B may respond with an equally insulting remark; if B does, A may be irritated enough to strike B; if A does, B may retaliate in kind; however, A may anticipate that B will strike back and therefore A does not strike B (12:18)

The Classical or Rational Actor Model assumes that a nation will act rationally when it selects alternatives in response to another nation. The basic concepts the model uses are: (1) Goals and Objectives, where the nation ". . . must be able to rank in order of preference each possible set of consequences that might result from a particular action", (2) Alternatives, where the nation ". . . must choose among a set of alternatives displayed before him in a particular situation", (3) Consequences, where ". . . [to] each alternative is attached a set of consequences or outcomes of choice that will ensue if that particular alternative is chosen" and (4) Choice, ". . . rational choice consists simply of selecting that alternative whose consequences rank highest in the decision-maker's (opinion)" (1:30).

The Organizational Process Model goes beyond the Rational Actor Model's unitary, rational decision maker that centrally controls the decision process by maximizing the value of his choice (1:67). The Organizational Process Model recognizes that governments have heads of state that

hold the key decision making positions, but it also takes into account that governments are made up of a large number of interdependent organizations and that these organizations make decisions based on how they sense the environment in which they operate (1:67).

Allison states:

To perform complex routines, the behavior of large numbers of individuals must be coordinated. Coordination requires standard operating procedures: rules according to which things are done. Reliable performance of action that depends upon the behavior of hundreds of persons requires established 'programs' (1:68).

Because of the standard procedures and established programs a government is much slower to change, but in fact, ". . . organizations do change, [however] learning occurs gradually, over time. Dramatic organizational change occurs in response to major disasters" (1:68).

At the core of this theory are four concepts:

1. Quasi-Resolution of Conflict. [Where] Individual subunits of the organization handle pieces of the firm's [government's] separated problem in relative independence.
2. Uncertainty Avoidance. [Where] Organizations seek to avoid uncertainty [by] solving pressing problems rather than developing long-run strategies [and] negotiating with the environment . . . by imposing plans [and] standard operating procedures.
3. Problemistic Search. [Where] Search is stimulated by a specific problem and motivated to find a solution to that problem.
4. Organizational Learning. [Where] Organizations are . . . dynamic institutions [which] change adaptively as the result of experience. Over time, organizational learning produces changes in goals, attention rules, and search procedures (1:77).

The third model Allison presented was Governmental Politics. Where the Organizational Process Model described government decision making in terms of organizational output ". . . partially coordinated by a unified group of leaders" (1:144) ". . . and the classical model's . . . behavior as choices of a unitary decision maker" (1:144), the Governmental Politics Model ". . . sees no unitary actor but rather many actors as players--players who focus not on a single strategic issue but on many diverse intra-national problems" (1:144).

This third model is really more comprehensive in that it attempts to explain dynamic situations that occur in political organizations. Situations that involve the decisions of the recognized heads of state as they are influenced by the stronger players in their political environment. These players can be competitors to the head of state or self-interest groups that are attempting to influence the decisions the government makes to best suit their agenda.

These three models can all be used by international relations students to study why nations behave the way they do. But, because of the need to simplify data evaluation, the classical model best describes how decisions are made within the context of event/interaction prediction models.

When international relations students:

. . . saw a shift of interest [from the power nations possessed] to nations' actual behavior;

scholars began to look carefully at what nations do to and with each other, and eventually two types of data study developed (3:IX).

The two developed data studies were transaction and event/interactions. The transaction data study was pioneered by Karl Deutsch, who used ". . . any routine, measurable occurrences such as mail flows or trade" (3:IX) to quantify what nations act on in the international arena.

Deutsch said,

Communication was social before it became elaborately technological. There were established routes for messages before the first telegraph lines. In the nineteenth century, factories and railroads required accurate coordination of complex sequences of human actions--a requirement that became central in the assembly-line methods and flow charts of modern mass production. The same age saw the rise of general staffs, and of intelligence organizations for diplomatic as well as for military purposes. These staffs and organizations, just as the modern large-scale industrial research laboratory itself, represent in a very real sense assembly lines of information, assembly lines of thoughts (6:75).

Deutsch's study was based on "cybernetics," which he says is ". . . the systematic study of communication and control in organizations of all kinds" (6:76). His ". . . viewpoint of cybernetics suggest that all organizations are alike in certain fundamental characteristics and that every organization is held together by communication" (6:77). Additionally, ". . . we can measure the 'integration' of individuals in a people by their ability to receive and transmit information on wide ranges of different topics with

relatively little delay or loss of relevant detail" (6:150). As a consequence, the ability to measure the accuracy and range of information transmitted between nations provides insight on their behavior toward one another (6:151).

Charles McClelland, pioneered the other data study, event/interactions, which used ". . . nonroutine and unconventional activities of international actors" (3:IX) to study the actions of nations. Where Deutsch's data study gathered communications and tried to analyze how nations would react to one another based on their communications, McClelland gathered data on events that happened between two nations (a dyad) and categorized the different events to show a relationship between the two nations. This information came to be known as the World Event/Interaction Survey (WEIS) data.

Two approaches were developed by international relations researchers to study the data gathered on events/interactions. The first concentrated on, ". . . dividing the events into categories on the basis of type of action . . ." and the second concentrated on ". . . assigning events a point on a scale on the basis of an action's intensity (i.e., scaling) (3:IX).

McClelland used the categorization method to define events in his WEIS data which has been used by Department of Defense and civilian corporation analysts to study interaction between nations such as during the Berlin Crisis

in 1948-49 and 1961 (13:390). McClelland's ". . . categorization approach permits a researcher to study the relation between types of action and the responses they generate in other nations, but it disregards both the context and intensity of an act" (3:IX).

Edward E. Azar, however, used a scaling approach to events study (where he assessed the intensity of the actions of specific nations when they had interactions with one another). In 1970 he developed a measurement scale that assigned individual events points based on the intensity of the interaction between nations. Azar's 13-point measurement scale is based on evaluating data within the context of ". . . who does what to whom and/or with whom and when" (2:231) and the scale rated from low to high the violence intensity between two nations. It is this measurement of intensity of violence that this thesis will concentrate on and in particular the use of Edward Azar's 13-point interval scaling approach for national event prediction.

Both McClelland and Azar assumed the classical model or rational actor as a basis for decision-making by nations as a result of their interpretations of other nations actions toward them. In this assumption, they expect that each nation will try to maximize its outcome through decision-making processes that provide the best possible choice from available solutions.

To summarize what has been discussed so far, three models, described by Allison, exist to classify how nations make decisions: 1) Classical or Rational Actor Model, 2) Organizational Process Model, and 3) Governmental Politics Model. Each of these models assume a different emphasis on how decisions are made for interactions between nations. The models go from the simple (Classical) one person, best choice model to a complex (Governmental Politics) influenced head of state, politically best choice model.

The events/interaction data studies that McClelland and Azar developed were based on the simple Classical or Rational Actor Model. Their studies, though based on the same data, were evaluated differently. McClelland categorized his data to show types of events that occurred between nations (Appendix A), but with no regard to the intensity of the interaction between them. On the other hand, Azar developed a scale that showed the relative intensity of violence between the two nations.

Purpose and Use of a Prediction Model

The main purpose of an early warning model is prediction. The user of any prediction model wishes to obtain a forecast on future events, in this case, events between nations that could lead to conflict between these nations. These predictions can then be used for planning purposes by the user and/or his sponsor to try to prevent the conflict, or

to gain an advantage during the early stages of the conflict.

Nazli Choucri suggests that there are four different goals of forecasting:

(1) understanding the unknown; (2) planning for the immediate future; (3) anticipating long-range futures; and (4) controlling future outcomes (2:225).

Azar's model concentrates on Choucri's second goal, planning for the immediate future, and the belief that the

. . . achievement of this goal is contingent upon developing forecasting methodologies for short periods of time within relatively limited ranges of contingencies (2:225).

In other words, for Azar's conflict prediction model to provide a useful forecast on the onset of hostilities, it must be a short-range forecast used specifically for conflict prediction.

To provide this planning for the immediate future or short range planning, Azar developed a model that would take events between two nations, scale them according to intensity of violence, and use the numbers from this scaling process to establish variables for a regression model to predict the immediate future. His model takes into account the actions that occur the previous month, their levels of intensity, and the memory that one nation has of the violence the other nation has inflicted on it in the past six months. This regression model would then predict the

level of violence that would be expected the following month based on the given variables.

Characteristics of Azar's Early Warning Model of International Hostilities

How a nation reacts to another nation's actions depends on many things:

1. the historical interaction between the nations
2. how the nations assess the actions of other nations
3. the response they choose to counter the actions of other nations.

Azar describes this process in four steps:

(1) Locating the signal within the normal relations range, (2) Projecting behavior of the target nation, (3) selecting and implementing a strategy, and (4) monitoring the target's response (2:226).

Azar states that nations have a normal relation range (NRR) with nations that they have previously come in contact

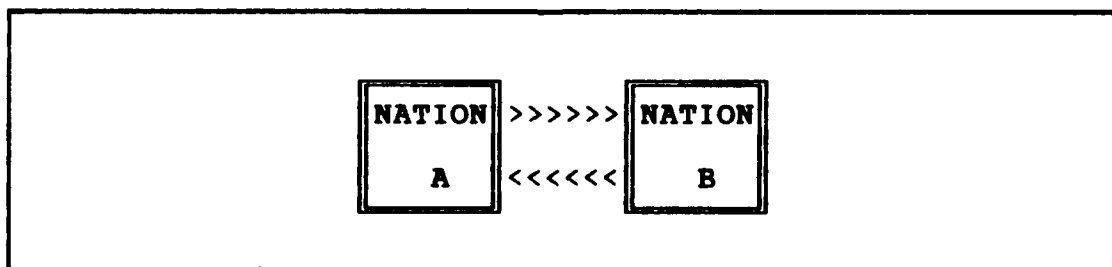


Figure 1. BASIC DYAD

with. The interaction between any two nations, called a dyad (Figure 1), will be viewed by these nations within the context of their evolving NRR. This NRR, has an upper bound and a lower bound which delineates how a nation will view an act by another nation (Figure 2). If an action by one nation toward another nation falls above the upper bound it is viewed as a hostile act and can ". . . produce a crisis; (and) if responded to in kind, an escalation process sets in - one likely to exact high human and material costs" (2:227). On the other hand, if the action falls below the NRR, then the two nations may be able to move toward more peaceful and mutually beneficial relations. For example,

. . . Canada and the USA who have a relatively friendly NRR can get into a crisis when they begin to accuse one another, recall their diplomats and refuse to talk to one another. Egypt and Israel, on the other hand, would have to go far beyond these acts in order to get into a crisis. They would have to mobilize, exchange border fires and so forth because their normal relations are generally unfriendly with a very high, hostile NRR (4:197).

The critical NRR ". . . is a range defined as the mean Dimension of Interaction of three months and one standard deviation from this mean (4:221). The Dimension of Interaction is ". . . the measure of frequency and intensity of interaction" (4:215).

Dimension of Interaction (DI) scores are calculated by dividing the Azar 13-point scale into two regions, one for conflict (levels 8-13) and one for cooperation (levels 1-7).

The conflict DI is the sum of all points 8 to 13. Each of these points are the product of the total number of events at that specific scaling point and the weighted value (converted value in table 3) of that specific scaling point. The cooperation DI is the sum of all points 1 to 7. Each of these points are the product of the total number of events at that specific scaling point and the weighted value (converted value in table 3) of that specific scaling point.

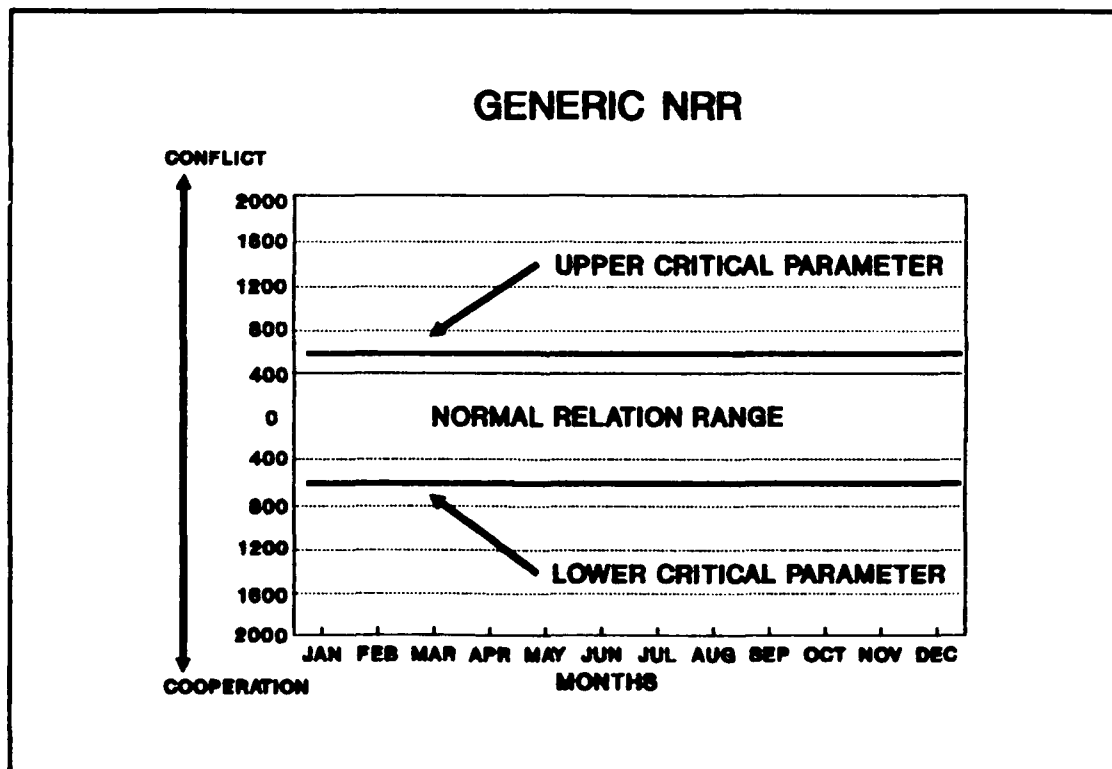


Figure 2. Generic NRR

Azar believes that a "... researcher can empirically establish the NRR of a pair of nations by quantifying historical events which have occurred between a pair of nations and, therefore, can substantially increase

projection capabilities" (2:227). NRR's appear to develop over a long period of time and they do not change very quickly. Since these NRR's are stable over time and take a long time to change, they become very useful for making predictions, especially near term predictions (2:229).

Azar states:

Changes [in the NRR] are usually due to significant shifts in a nation's economy, technological capacities, political system, or military capabilities. Over short periods of time, such as one to two years, very little change occurs. Our examination of the behavior of 105 dyads has shown us that dyadic relations between nations tend to be stable over periods of 5 or fewer years. In some instances, dyadic NRRs remain stable over 25 year periods (2:227).

Once a nation has received a signal (any action taken by another nation) from another nation it must evaluate how to respond to this signal and also evaluate how the other nation will act when it observes the response. The forecast nation A makes about how nation B will respond is based entirely on the memory nation A has about nation B. Where memory will be:

. . . that part of information that actor A retrieves, as though there were no discontinuities, in order for that actor to assess and project the performance of actor B and in order to formulate its own response towards B (2:227).

Nation A will select and implement a strategy based on its assessment of nation B and that it will continually monitor nation B to see how B responds to nation A's

strategy implementation. This interaction can find a stabilized existence within the NRR or it can escalate through the upper bound of the NRR and become a crisis or ultimately result in the onset of conflict. The interaction between nations can also move through the lower bound which would indicate a new stronger cooperative relationship. If this more cooperative attitude remained for any length of time then a new NRR would be established for these two nations.

Overview of Azar's Early Warning Model

Karl W. Deutsch said, ". . . In making predictions over time , we must . . . collect series of selected data for the past, abstract from them some pattern, and extend or 'extrapolate' that pattern tentatively into the future" (6:7). Deutsch notes,

By extending several time series tentatively into the future, side by side, we may make a guess as to what might happen if the peaks or valleys of several such series, let us say, of industrial strikes and agrarian unrest, or exports and domestic credits, should happen to coincide at some date in the future, even if they did not do so in the past. Natural scientists can predict in this manner the likelihood of rip tides, when the time of flood, the phase and position of the moon, and a strong onshore wind may combine to maximum effect. Students of social and political science might similarly become able to appraise the likelihood of rip tides of social change, when several normally separate processes making for social stress might coincide so as to exercise their greatest force. Thus, if in each of, say, one hundred countries there were at work three mutually independent stress-producing processes--such as agrarian revolts, industrial unrest, and foreign military conflict--and if each of these processes should tend to become acute, or to reach a peak about once every ten years, then the chances would be better than even that these three peaks

would coincide, and the "rip-tide effect" would shake or even overthrow the government in a least one of these countries within the next ten years.

Our discussion of the nature of knowledge has clear implications for the functions of models. We may think of models as serving, more or less imperfectly, four distinct functions: the organizing, the heuristic, the predictive, and the measuring (or measureative) (6:8).

Azar says prediction models can be ". . . relatively specific in terms of type and time dimensions . . . or somewhat general" (2:228). That is to say the models can predict either a specific type of conflict during a specific time frame or predict some general activities during some broader time frame. He goes on to state that the more specific a model is in its time and events prediction the more valuable it is. The main thrust of Azar's Early Warning Model of International Hostilities is the prediction of specific events (i.e. onset of war) within specific time dimensions (i.e. a particular month). To predict international hostilities between two nations you must quantify the maximum hostile signals that nations send to one another and evaluate them within their NRR. This evaluation ". . . indicate[s] the seriousness of the interactions profile, the relative amount of friendliness to hostility" (2:230) and is used by Azar in the Early Warning Model of International Hostilities as an independent variable in a regression model.

13-Point Interval Scale. Azar's prediction model is dependent on events data that can be gathered and scaled according to his 13-point scale. An event is defined as ". . . any overt input and/or output recorded at least once in any . . . reputable and publicly available sources" (2:230). This information should be scaled according to the following criteria: "(1) time, (2) actor, (3) target, (4) source, (5) activity (action-word), and (6) issue area" (2:230).

The 13-point interval scale that Azar developed and used in his model ". . . contains thirteen behaviors, ranging from most to least cooperative" (2:233). Table 1 lists the behaviors along with their corresponding scores.

To use the scale, ". . . the most hostile actions of A to B were taken to be those monthly events from A to B having the highest value based on the 13-point scale" (2:231). Then the relative hostility is measured in the following manner:

1. Divide the 13-point scale into two regions:
 Region I, the less hostile end of the scale (points 1-6)
 Region II, the more hostile end of the scale (points 8-13)
 Scale point 7 becomes the midpoint between the two regions.
2. Convert the scale points in each region as follows:
3. Develop a measure of the amount of interaction between a dyad by multiplying the intensity level (converted value above) times the quantity of events at that level (i.e. frequency) and then adding these values for each of the two regions" (2:232).

$$DI_{\text{Region I}} = \text{The Summation of } +1 \text{ to } +6 f_j \times i_j \quad (1)$$

$$DI_{\text{Region II}} = \text{The Summation of } -1 \text{ to } -6 f_j \times i_j \quad (2)$$

Table 1

Azar's 13-Point Interval Scale

1. nations A and B merge to form a new nation-state
2. nations A and B establish their own regional organization
3. nation A extends economic aid to nation B
4. nation A and B establish a friendship agreement
5. nation A receives support for its internal and/or external policies
6. nations A and B communicate regarding issues of mutual concern
7. nation A experiences limited internal political difficulties
8. nation A makes a protest directed against nation B
9. nation A increases its military capabilities
10. nation A encounters domestic politico-military violence
11. nation A initiates subversion in nation B
12. nations A and B engage in limited war activities
13. nation A engages in an all-out war against nation B

(2:231)

These Dimensions of interaction (DIs) generated in step 3 are used to describe the relative hostility between nations. For example, a relatively friendly interaction would be represented by DI for Region I divided by DI for Region II greater than 1 and conversely a relatively hostile interaction would be represented by DI for Region I divided by DI for Region II less than 1. Indifference would be represented by DI for Region I divided by DI for Region II equal to zero.

Table 2
Relative Region Values

Region I			Region II		
13-Point Scale	Converted Value		13-Point Scale	Converted Value	
1	=	+6	8	=	-1
2	=	+5	9	=	-2
3	=	+4	10	=	-3
4	=	+3	11	=	-4
5	=	+2	12	=	-5
6	=	+1	13	=	-6
7	=	0			

(2:232)

The DI's are used by Azar as variables in his linear regression. Conceptually, these DI's are just a numerical representation of a nation's normal relation range with another nation at any given point in time.

The Linear Regression Model. Azar's model is a multiple regression model that relates a dependent variable (a point on Azar's 13-point scale) to five independent variables (each explained below). Multiple regression analysis ". . . includes fitting the model to the data set, testing the utility of the model, and using it for the estimation of the mean value of the dependent variable for given values of the independent variables" (11:555).

According to McClave and Benson,

Probabilistic models that include terms involving x^2 , x^3 (or higher-order terms), or more than one

independent variable are called multiple regression models. The general form of these models is

$$y = y_0 + B_1x_1 + B_2x_2 + . . . + B_kx_k + \text{epsilon}$$

The dependent variable, y now written as a function of k independent variables, $x_1, x_2, . . . , x_k$. The random error term is added to make the model probabilistic rather than deterministic. The value of the coefficient B_i determines the contribution of the independent variable x_i , given that the other x variables are held constant, and B_0 is the y -intercept. The coefficient $B_0, B_1, . . . , B_k$ will usually be unknown, because they represent population parameters (11:556).

The following are Azar's variables for the regression model:

1. A's and B's most hostile acts at a specified month, t
2. A's and B's most hostile acts at $t + 1$, that is, the average for A and B of the most hostile acts from $t - 6$ to $t - 1$ (or at $t - 1$)
3. A's and B's cooperation $DI(RI)/\text{hostile } DI(RII)$ at t
4. A's and B's cooperation $DI(RI)/\text{hostile } DI(RII)$ at $t + 1$
5. A's and B's average of cooperation $DI(RI)/\text{hostile } DI(RII)$ from $t - 6$ to $t - 1$ (or memory of $DI(F)/DI(H)$ at $t - 1$) (2:232).

Variable one uses the most hostile act of the two nations involved at any point in time. Azar's research found that on average, ". . . most specific issues that required immediate action or response had an average life span of 6 months" (2:233). The second variable in the regression equation reflects this memory and Azar used it as a smoothing variable. Variable two operationalizes the memory of nations to reflect their relevant memory over the last six months. Variables 3-5 reflect the DI 's of the two nations at different points in time.

Azar's research determined the following basic equations:

$$\begin{matrix} \text{MAX} \\ A_t + 1 \end{matrix} \frac{\text{DI(F)}}{\text{DI(H)}} = xA_t + yA_{\text{mem at } t-1} + zB_t + \epsilon \quad (3)$$

$$\begin{matrix} \text{MAX} \\ B_t + 1 \end{matrix} \frac{\text{DI(F)}}{\text{DI(H)}} = x'B_t + y'A_{\text{mem at } t-1} + z'A_t + \epsilon' \quad (4)$$

Where x , y , z , x' , y' , z' , ϵ , and ϵ' are constraints that do not change for a period of 1 year (2:233).

Assumptions Considered for Azar's Model. That the interaction between nation A and nation B is based on each nation's assessment of the other nation's intentions (i.e. Classical or Rational Actor Model) and the selection process for the strategic response is as described above. Also, Azar states that the regression model

. . . is only useful under certain conditions; it applies (1) to states that have symmetrical politico-military capabilities; are important to each other, and compete with each other for politico-military influence; (2) during a period of an unchanging or fairly stable normal relations range, or NRR; and (3) over a short-term period (i.e. 1 month) (2:232).

He means that the nations must be relatively the same size militarily and politically have about the same amount of influence worldwide. Also, the two nations involved (the dyad) must be competing with one another politically and/or militarily. For example, it would not be very useful to try to use the model on a dyad of the Philippines and the United Kingdom, because they have very different strengths

militarily and politically and have no real competition for influence in either of these areas.

An unstable NRR may be illustrated by the fast changes in the relationship between the United States and the communist countries of Eastern Europe during 1989-90, when the communist governments were changing to a more democratic form of government.

Azar goes on to say, that if the dyad is asymmetrical, has an unstable NRR, or a long period of time must be covered by the forecast, then, the regression model may not work (2:235).

Chapter Summary

This chapter gave a brief outline of the evolution of the study of international relations, discussed two schools of thought that developed to study data about international relations and examined how Azar's model was an outgrowth of that evolution. The purpose and use of prediction models were said to be for gaining insight on future events between nations that could lead to conflict between these nations. The characteristics of Azar's model were discussed in terms of the Normal Relations Range that nations conduct their political business in and what thought processes nations go through when they receive information that falls outside, either above or below, the NRR. Azar's model was described and his 13-point interval scale and interval widths were given, along with how the regression model variables were

constructed with the 13-point scale. Finally, assumptions that had to be made to use Azar's model were detailed.

Chapter three will give the methodology that will be used to obtain the data and the method that will be used to analyze the data.

Chapter III. Methodology

Chapter Overview

This chapter describes the methodology used to collect the data and the process of analyzing the data using Azar's conflict prediction concepts. It will give the general description of the methodology to collect and order the data and the statistical concepts used to analyze the results.

General Description

The objective of this thesis is to study a specific model on conflict prediction and determine if a model can be defined which provides, with confidence, an accurate predictor of the onset of war. A literature review was used to describe the background of international relations and focused on the specific data that could be gathered and analyzed using a specific forecasting model.

Model Development. The Early Warning Model uses variables defined by Azar as delineated in Chapter II. Once these variables are defined a multiple regression process was performed using the Statistix Program. This multiple regression model uses the intensity level of interactions between dyads and the constants are based on the existing data (United States Naval Academy WEIS Data Bank) chosen for this thesis.

There will be four separate regression models derived from Azar's concepts: 1) one that predicts Iran's most

hostile action toward Iraq, 2) one that predicts Iraq's most hostile action toward Iran, 3) one that predicts Great Britain's most hostile action toward Argentina, and 4) one that predicts Argentina's most hostile action toward Great Britain.

Each of these models will consist of the following variables:

$$A_{t+1} = xA_t + yA_{\text{mem at } t-1} + zB_t + \epsilon \quad (5)$$

where

A_{t+1} = Iran's predicted level of hostility toward Iraq for the following month.

A_t = Iran's most hostile action toward Iraq (based on Azar's 13-point scale).

$A_{\text{mem at } t-1}$ = The average of Iraq's most hostile actions toward Iran over the last six months.

B_t = Iraq's most hostile action toward Iran.

x = constant derived from the previous 12 months data.

y = constant derived from the previous 12 months data.

z = constant derived from the previous 12 months data.

$$B_{t+1} = x'B_t + y'B_{\text{mem at } t-1} + z'A_t + \epsilon' \quad (6)$$

where

B_{t+1} = Iraq's predicted level of hostility toward Iran for the following month.

B_t = Iraq's most hostile action toward Iran (based on Azar's 13-point scale).

$B_{\text{mem at } t-1}$ = The average of Iran's most hostile actions toward Iraq over the last six months.

A_t = Iran's most hostile action toward Iraq.

x' = constant derived from the previous 12 months data.

y' = constant derived from the previous 12 months data.

z' = constant derived from the previous 12 months data.

$$C_{t+1} = wC_t + uC_{\text{mem at } t-1} + vD_t + \epsilon \quad (7)$$

where

C_{t+1} = Great Britain's predicted level of hostility toward Argentina for the following month.

C_t = Great Britain's most hostile action toward Argentina (based on Azar's 13-point scale).
 $C_{mem \text{ at } t-1}$ = The average of Argentina's most hostile actions toward Great Britain over the last six months.
 D_t = Argentina's most hostile action toward Great Britain
 w = constant derived from the previous 12 months data.
 u = constant derived from the previous 12 months data.
 v = constant derived from the previous 12 months data.

$$D_{t+1} = w'D_t + u'D_{mem \text{ at } t-1} + v'C_t + \epsilon' \quad (8)$$

where

D_{t+1} = Argentina's predicted level of hostility toward Great Britain for the following month.
 D_t = Argentina's most hostile action toward Great Britain (based on Azar's 13-point scale).
 $D_{mem \text{ at } t-1}$ = The average of Great Britain's most hostile actions toward Argentina over the last six months.
 C_t = Great Britain's most hostile action toward Argentina.
 w' = constant derived from the previous 12 months data.
 u' = constant derived from the previous 12 months data.
 v' = constant derived from the previous 12 months data.

Database. The WEIS database obtained from the United States Naval Academy was used to evaluate two specific conflicts. These conflicts (Iran-Iraq War and Falkland Island War) were chosen because the first one represented the more classical onset of war (historical antagonists posturing to go to war) and the second a relatively fast acceleration from crisis to conflict.

Review Data from the Iran-Iraq War. The Naval Academy data base on Iran and Iraq was reviewed for the 24 months prior to the start of the War and all actions were

studied for use in the thesis. The thesis author translated the data on Iran and Iraq from the WEIS database into the Azar scaling system (Appendix B) and all efforts were made to keep the translation from the WEIS scale to the Azar scale consistent. To ensure the translation from the WEIS scale to the Azar scale was consistent, the author numerically ordered all data points from the WEIS data alongside their new corresponding Azar score. If any identical WEIS data points had a different Azar score then the difference was reconciled.

Review Data from the Falkland Island War. The Naval Academy data base was reviewed for actions between Argentina and Great Britain for 24 months prior to the start of the Falkland Island War and all actions were studied for use in the thesis. The thesis author translated the data on Argentina and Great Britain from the WEIS database into the Azar scaling system (Appendix B) and all efforts were made to keep the translation from the WEIS scale to the Azar scale consistent. To ensure the translation from the WEIS scale to the Azar scale was consistent, the author numerically ordered all data points from the WEIS data alongside their new corresponding Azar score. If any identical WEIS data points had a different Azar score then the difference was reconciled.

Assign Ranking to the Data. Using Azar's 13-point interval scale described in Chapter 2, each action was

ranked according to the scale by the thesis author. The rankings were then cross-referenced, for consistency, back to the WEIS data to make sure that none of the WEIS scales were assigned to different Azar scales.

Statistical Concepts

Perform Linear Regression on Azar's Model Variables. The model provides a prediction of event intensity vs time. Data from the 24 months prior to the onset of war in both cases was divided into two 12 month periods. The first 12 months of data was used to establish the regression variables and the second 12 months was used to test whether the developed regression formula provided an accurate prediction of the onset of war in either or both cases.

Validating the Model

Statistical Tests. The coefficient of determination, R-Squared, was used to represent the proportion of the total sample variability around the mean of the dependent variable that is explained by the linear relationship between the dependent variable and the independent variables (regression variables formulated from the scaled data). R-Squared equals explained variability divided by total variability, "Thus, $R^2 = 0$ implies a complete lack of fit of the model to the data, and $R^2 = 1$ implies a perfect fit, with the model passing through every sample data point. In general, the larger the value of R^2 , the better the model fits the data" (11:575). An R-squared

value of .60 was used as the acceptable level, any R-squared value below .60 would mean rejection of the model.

Assumptions of the Tests. The following assumptions were made about the random error, ". . . for any given set of values of $x_1, x_2, . . . , x_k$, the random error E has a normal probability distribution with mean equal to 0 and variance equal to sigma-squared" . . . and ". . . the random errors are independent (in a probabilistic sense)" (11:556).

Apply Ranked Data to the Model. Data was tested to determine if the model predicted the onset of the Iran-Iraq War and the onset of the Falkland Island War. The regression formula, obtained using Azar's concepts, the regression model, and the first 12 months of data from each dyad was used to obtain a prediction for each of the 12 months leading up to the start of each conflict. The results from these predictions were compared to the actual data to determine if the model predicted the onset of war in both cases. If the model predicted war in the month war actually started then the model is useful. If the model predicted the onset of war in any other month than the actual month the war started then it is not considered a very useful model for the prediction of the onset of war. However, the information obtained from the model may not be altogether useless because it may show trends that would be useful to some observers.

Chapter Summary

The methodology for gathering and analyzing data was discussed. How the regression models would be developed to evaluate the data was explained and methods for validating the model were described. The assumptions that had to be made to use the statistical tests were listed. The next chapter will give the findings of the test of the concepts of Azar's model.

Chapter IV. Analysis and Findings

Chapter Overview

This chapter discusses how the test data was obtained, the analysis done on the data, answers the research questions in relation to the data and it's analysis, and describes the sensitivity of the key variables used in the data analysis models. It also discusses the attempts made at arriving at a new model that better fit the data that was used in this thesis effort.

Gathering Test Data

The data used was obtained from the United States Naval Academy's WEIS Database. The data base on Iran and Iraq was reviewed for the 24 months prior to the start of the War, during September 1980, and all actions were translated from the WEIS database into the Azar scaling system (Appendix F for Iran and Appendix G for Iraq). The translation from the WEIS scale to the Azar scale was done using the cross-referencing sheet in Appendix B. To ensure the translation from the WEIS scale to the Azar scale was consistent, all data points were numerically ordered with the WEIS data alongside their new corresponding Azar score. If any identical WEIS data points had a different Azar score then the difference was reconciled. The same procedure was used to establish the database for the Falkland Island War between Argentina and Great Britain which started during

April 1982 (Appendix D for Argentina and Appendix E for Great Britain).

Data Analysis

The first model that was used to evaluate the onset of the Iran-Iraq War was:

$$A_{t+1} = xA_t + yA_{\text{mem at } t-1} + zB_t + \epsilon \quad (9)$$

where

A_{t+1} = Iran's level of hostility toward Iraq for the following month.

A_t = Iran's most hostile action toward Iraq (based on Azar's 13-point scale).

$A_{\text{mem at } t-1}$ = The average of Iraq's most hostile actions toward Iran over the last six months.

B_t = Iraq's most hostile action toward Iran.

x = constant derived from the previous 12 months data.

y = constant derived from the previous 12 months data.

z = constant derived from the previous 12 months data.

After the data had been scaled, it was placed into a tabular formate (Table 3) and input into the computer statistics program Statistix. The statistics program was to have provided the constants x , y , and z that were to be used on the second 12 months data to determine if Azar's method would provide a prediction of war (a 13 on Azar's scale from Table 1) for the month of September, 1980. However, the statistics program was unable to produce these constants because the data from the first 12 month period was highly correlated (actually all the data points were nearly the same).

Table 3

Data Used in Iran Regression Model

Month/ Year	Iran's Most Hostile Act at t + 1	Iran's Most Hostile Act at t	Iran's Memory	Iraq's Most Hostile Act at t
Sep 78	7	7	7	7
Oct 78	7	7	7	7
Nov 78	7	7	7	7
Dec 78	7	7	7	7
Jan 79	7	7	7	7
Feb 79	7	7	7	7
Mar 79	7	7	7	7
Apr 79	7	7	7	7
May 79	7	7	7	7
Jun 79	7	7	7	7
Jul 79	6	7	7	7
Aug 79	7	6	7.17	8

The second model that was used to evaluate the onset of the Iran-Iraq War was:

$$B_{t+1} = x'B_t + y'B_{mem \text{ at } t-1} + z'A_t + \epsilon' \quad (10)$$

where

B_{t+1} = Iraq's level of hostility toward Iran for the following month.

B_t = Iraq's most hostile action toward Iran (based on Azar's 13-point scale).

$B_{mem \text{ at } t-1}$ = The average of Iran's most hostile actions toward Iraq over the last six months.

A_t = Iran's most hostile action toward Iraq.

x' = constant derived from the previous 12 months data.

y' = constant derived from the previous 12 months data.

z' = constant derived from the previous 12 months data.

Again the data (Iraq's data) was scaled and placed into tabular formate (Table 4) and input into the computer statistics program Statistix. The statistics program was to

have provided the constants x' , y' , and z' that were to be used on the second 12 months data to determine if Azar's method would provide a prediction of war (a 13 on Azar's scale) for the month of September, 1980. Again the statistics program was unable to produce these constants because all the data was highly correlated (actually the data points were nearly the same).

Table 4

Data Used in Iraq Regression Model

Month/ Year	Iraq's Most Hostile Act at $t + 1$	Iraq's Most Hostile Act at t	Iraq's Memory	Iran's Most Hostile Act at t
Sep 78	7	7	7	7
Oct 78	7	7	7	7
Nov 78	7	7	7	7
Dec 78	7	7	7	7
Jan 79	7	7	7	7
Feb 79	7	7	7	7
Mar 79	7	7	7	7
Apr 79	7	7	7	7
May 79	7	7	7	7
Jun 79	7	7	7	7
Jul 79	8	7	7	7
Aug 79	7	8	7.17	6

The first model used to evaluate the onset of the Falkland Island War between Argentina and Great Britain was:

$$C_{t+1} = wC_t + uC_{mem\ at\ t-1} + vD_t + \epsilon \quad (11)$$

where

C_{t+1} = Great Britain's level of hostility toward Argentina for the following month.

C_t = Great Britain's most hostile action toward Argentina (based on Azar's 13-point scale).

$C_{mem\ at\ t-1}$ = The average of Argentina's most hostile actions toward Great Britain over the last six months.

D_t = Argentina's most hostile action toward Great Britain

w = constant derived from the previous 12 months data.
 u = constant derived from the previous 12 months data.
 v = constant derived from the previous 12 months data.

Again the data (Great Britain's) was scaled and placed into tabular formate (Table 5) and input into the computer statistics program Statistix. The statistics program was to have provided the constants w , u , and v that were to be used on the second 12 months data to determine if Azar's method would provide a prediction of war (a 13 on Azar's scale) for the month of May, 1982. Again the statistics program was unable to produce these constants because all the data was highly correlated (actually all the data points were nearly the same).

The second model used to evaluate the onset of the Falkland Island War between Argentina and Great Britain was:

$$D_{t+1} = w'D_t + u'Dmem_{at\ t-1} + v'C_t + \epsilon' \quad (12)$$

where

D_{t+1} = Argentina's level of hostility toward Great Britain for the following month.

D_t = Argentina's most hostile action toward Great Britain (based on Azar's 13-point scale).

$Dmem_{at\ t-1}$ = The average of Great Britain's most hostile actions toward Argentina over the last six months.

C_t = Great Britain's most hostile action toward Argentina.

w' = constant derived from the previous 12 months data.

u' = constant derived from the previous 12 months data.

v' = constant derived from the previous 12 months data.

The Argentine data was scaled and placed into tabular formate (Table 6) and input into the computer statistics

program Statistix. The statistics program again, should

Table 5
Data Used in Great Britain's Regression Model

Month/ Year	Britain's Most Hostile Act at t + 1	Britain's Most Hostile Act at t	Britain's Memory	Argentina's Most Hostile Hostile Act at t
Jun 80	7	7	7	7
Jul 80	7	7	7	7
Aug 80	7	7	7	7
Sep 80	7	7	7	7
Oct 80	7	7	7	7
Nov 80	8	7	7	7
Dec 80	7	8	7.17	7
Jan 81	7	7	7.17	7
Feb 81	7	7	7.17	7
Mar 81	7	7	7.17	7
Apr 81	7	7	7.17	7
May 81	7	7	7.17	7

have provided the constants w' , u' , and v' that were to be used on the second 12 months data to determine if Azar's method would provide a prediction of war (a 13 on Azar's scale from Table 1) for the month of May, 1982. Again the statistics program was unable to produce these constants because all the data was highly correlated.

Analysis of Test Data

The analysis of the Iran database did not provide constants that could be used in a regression model to predict the onset of the Iran-Iraq War. As the data was

scaled it became apparent that the time frame (month) being used in the model was too large to capture the shifts in the

Table 6

Data Used in Argentina's Regression Model

Month/ Year	Argentina's Most Hostile Act at at t + 1	Argentina's Most Hostile Act at at t	Arg. Memory	Britain's Most Hostile at t
Jun 80	7	7	7	7
Jul 80	7	7	7	7
Aug 80	7	7	7	7
Sep 80	7	7	7	7
Oct 80	7	7	7	7
Nov 80	7	7	7	7
Dec 80	7	7	7	8
Jan 81	7	7	7	7
Feb 81	7	7	7	7
Mar 81	7	7	7	7
Apr 81	7	7	7	7
May 81	7	7	7	7

interaction between the two nations (Iran and Iraq). This was also the case with the Iraq database, as the Iraq data was scaled it was apparent that the time frame (month) was too large (just as it had been for the Iran data) to capture the shifts in the interaction between the two nations.

After running the data from Iran and Iraq (which were nearly identical) the first 12 months of data did not give the constants necessary to evaluate the second 12 months of data in either case.

The analysis of the Argentine database was the same as that of Iran and Iraq, as the data was scaled it became obvious that the time frame (month) being used in the model

was too large to capture the shifts in the interaction between the two nations. The first 12 months of Argentina's data did not give the constants necessary to evaluate the second 12 months of data. The analysis of Great Britain's database was more of the same and as the data was scaled it also showed that the time frame (month) being used in the model was too large to capture the shifts in the interaction between the two nations. Again, the first 12 months of Great Britain's data did not give the constants necessary to evaluate the second 12 months of data.

Analysis of the Normal Relation Ranges

The normal relation range (NRR) for Iran and Iraq was calculated using one standard deviation from the mean of the Dimensions of Interaction for the 12 months immediately preceding the start of the Iran-Iraq War. The computation showed a mean of $-.9167$ with a standard deviation of 2.193 which gave a NRR between 1.2763 and -3.1097 . The interaction between Iran and Iraq stayed within this NRR for 10 of the 12 months, but peaked slightly through the upper critical parameter at -5 during December of 1979 and again at -4 in April of 1980. Although this movement through the upper critical parameter indicated a higher level of conflict outside the NRR of the two countries, it was not sustained over any period greater than one month and did not

give any indication of a trend in the relation between the two nations.

The normal relation range (NRR) for Argentina and Great Britain showed a mean of 0 with a standard deviation of 0 which gave a NRR of 0 (there was no data available for the 12 months preceding the start of the Falkland War). Therefore, the NRR could not provide a predictor.

Analysis of Research Questions

After doing the analysis of the data from the Iran-Iraq War and the Falkland Islands War between Argentina and Great Britain the investigative questions were answered.

Investigative Questions.

1. How does Azar's Early Warning Model predict hostilities and what parameters does it use?

Azar's method predicts hostilities by using a linear regression model to look at the interactions between two nations over a period of time (two years in our case) and to predict the behavior of one nation toward another based on that nation's hostility level, its memory of the other nations's hostility toward it over the preceding six months and the other nation's hostility toward it in the current month.

Azar also used a Normal Relations Range (NRR) to show trend or direction of the interaction between two nations. By showing how the nations have reacted toward one another over the previous 12 months (direction) in relation to their

NRR he could show in which direction the prediction (magnitude) his model made was likely to be moving.

2. Does the model reliably (the war starts during the month the model predicted it would start) predict the onset of the Iran-Iraq War?

The model does not reliably predict the start of the Iran-Iraq War, in fact, because of the length of the time frame used in the model (one month) for the data points, the data used in this research (Naval Academy WEIS database) does not give a prediction at all. The regression could not be completed because of the data points were nearly identical, which made it impossible to evaluate the second 12 months of data leading up to the start of the war since no constants could be gained from the regression analysis of the first 12 months of data.

3. Does the model reliably (the war starts during the month the model predicted it would start) predict the onset of the Falkland Island War between Great Britain and Argentina?

The model does not reliably predict the start of the Falkland Island War, for the same reasons as the Iran-Iraq War.

4. What are the limitations of Azar's model?

The most apparent limitation to the model is that it is extremely dependent on comprehensive data far enough in advance of the onset of hostilities to allow an accurate

evaluation of the data to be used to gain constants for the regression model. These constants must be available to use on the second 12 months data in order to predict the start of a war.

Other limitations include the relative closeness, militarily (size) and politically (sphere of influence), of the combatants that is necessary to use the interactions between the nations to establish a normal relations range and memory variables. The closeness of Iran and Iraq, militarily and politically, fit well with Azar's model, but the Argentina-Great Britain dyad is not close either politically or militarily and did not fit Azar's model very well.

5. Does analysis of the model predictions suggest any changes that could improve Azar's model, and if so, what would the changes be?

The time frame for measuring hostilities and the memory of the nations could be shortened to help evaluate the two conflicts that this thesis discussed. However, any conflict that would be looked at would have its own unique time period and would be as dependent on accurate and comprehensive data being available. Potential conflicts around the globe would have to be looked at in their own rights and a judgement made, that is obviously beyond the scope of Azar's model as it exists today, as to what time

frame would be most appropriate to apply to this model to make it effective in predicting a conflict.

Model Sensitivity to Key Variables

The model was not very sensitive to key variables. When the time frame of one month proved to be inadequate, the time frame was shortened to one week, but this proved to be ineffective because the data of the first 12 months worth of was still too neutral and identical to provide the computer statistics program enough data points to generate the constants for the regression analysis of the second 12 months of data.

When one week was again used as the time frame and a 24 week period (instead of 24 months) before the start of each conflict was evaluated the results were the same as for the 24 month period. There were not enough data points that were different from the neutral point of 007 to allow the statistical computer program to provide the constants necessary to evaluate the second 12 week period.

Finally, the time frame was shortened to one day. That is a 24 day period before the start of each conflict was evaluated and the data from the first 12 day period was used to develop constants to be used in the second 12 day period to try to predict the onset of the conflicts. Again, this proved to be unsatisfactory because of the lack of data points. There were no more points provided by changing from weeks to days.

The real sensitivity of the model appears to be the data points and the availability of comprehensive data far enough in advance to make the analysis meaningful. This type of data might not be available to the open public, since the public news sector normally does not take notice of gradual changes between nations or track the constant interactions between nations unless the interactions are very violent and even so if these interactions did not result in a war or do not happen often enough to keep the news sectors attention many of the necessary data points that would be needed are lost.

The other alternative is the classified news that is tracked by the military, State Department, and Central Intelligence Agency. These organizations have access to interactions between nations that public news sector might not have and an interest that the news reading public might not normally have. Any serious attempt to predict a war between two nations should definitely include the data bases of one or more of these organizations.

Chapter Summary

This chapter has included the discussion on the gathering of data that was used in the data analysis. It discussed the difficulty encountered with the data analysis both with the Iran-Iraq War and the Falkland Island War between Argentina and Great Britain. The normal relation ranges for both dyads were also computed. The research questions were

answered and the model's sensitivity to key variables was discussed. The final chapter will give the conclusions reached as a result of this research and some recommendations that might help in any additional research in this area.

Chapter V. Conclusions and Recommendations

Chapter Overview

This chapter will give the summary of the research experiment, discuss the results of the data analysis, suggest how the information could be used, and lastly recommend what research could be done to further the knowledge of this thesis subject.

Summary of Research Experiment

The research experiment in this thesis was designed to determine if Edward E. Azar's Conflict Prediction Model could accurately predict the start of the war between Iran and Iraq in 1980 and the start of the Falkland Island War between Argentina and Great Britain in 1982.

The model that Azar suggested could be used to predict the start of a conflict was adapted for use with data obtained from the Worldwide Events Interaction Survey (WEIS) database that is maintained by the United States Naval Academy. After the data was transformed from its WEIS formate into the formate used by Azar for his model, the data was evaluated to try to produce constants that could be used in a regression analysis for a prediction of the start of the two separate conflicts.

Discussion of Results

The first 12 months of data that was evaluated from the Iran-Iraq War did not provide enough data points for the

computer statistical program to produce the constants needed for the regression analysis of the second 12 months of data. Without these constants no prediction could be made about the start of the Iran-Iraq War based on Azar's model. This was not the outcome that was expected from the Iran-Iraq database, but as the data was transformed from the WEIS database and scaled it became apparent that the time frame (month) that was being used in the model was too large to capture the shifts in the interaction between the two nations (Iran and Iraq). There were just not enough data points that differed (in fact nearly all the data points for the first 12 months of data were identical) to show either magnitude or direction.

After changing the time period from one month to one week the data points were still nearly identical and the computer program could not obtain statistical constants to be used in the regression analysis. Another attempt was made with a 24 week period replacing the 24 month period, where the first 12 weeks of data were analyzed to try to produce constants to use on the second 12 weeks of data. However, this did not change the data points thus it did not produce any constants. Lastly, the time period was changed from weeks to days and a 24 day period was used. The data from the first 12 days were evaluated to try to produce the constants to use on the second 12 days, but there were still insufficient data to provide these constants.

The Argentine-Great Britain database was evaluated the same way as the Iran-Iraq database and the results were the same. Here again, there were not enough data points available to provide the constants to use in a regression analysis to try to predict the onset of a conflict. This outcome was expected from the Argentine-Great Britain database because of the relatively sudden onset of the Falkland Island War and the basic differences, militarily and politically, between the two countries involved. As the data was scaled it became obvious that the time frame (month) that was being used in the model was too large (just as it had been during the Iran-Iraq evaluation) to capture the shifts in the interaction between the two nations. Also, as expected, the first 12 months of data did not give the constants necessary to evaluate the second 12 months of data. The evaluation was just as unsuccessful when the time frame was reduced from one month to one week. When the time period was reduced from 24 months to 24 weeks it also failed to produce any constants. Lastly, when the time period was reduced from 24 weeks to 24 days the data still could not be used to produce constants for use in the regression analysis.

Policy Implications for Potential Users/Researchers

The fact that the thesis could not prove that Edward Azar's Conflict Prediction Model could predict the start of

either the Iran-Iraq War or the Falkland Island War between Argentina and Great Britain does not mean that the model is not useful. Instead, it points directly to the main problem in any attempt to predict an event--the lack of comprehensive data. However, without a large, comprehensive database the use of this model is not believed by this author to be very useful.

Access to data is not the only key, but access to the right kind of data is. The question as to who determines what is the right kind of data leads back to what is the prediction being used for. The ultimate use of a prediction model and its users will determine what is the right kind of data. The users will need to be experts in the area in which they wish to predict an event because they will have to determine what sources they will use to get their data. These experts will need access to classified data if they are to have any hope of getting a complete database for use with any prediction model.

Recommendation for Refinement, Adaptation, or Revised Model

Edward Azar's Conflict Prediction Model could be used to build an expert system that could provide most of the basic evaluations about interactions between two nations but again, the expert system using Azar's basic model and the information from the recognized experts would still be completely dependent on timely comprehensive data.

Any revision to Azar's basic model would have to be dyad specific. That is because each interaction between two nations is unique and their variables must be determined individually. The model could be made much more comprehensive by providing more data points to base a prediction on, but again this is dyad specific and would require an expert in the area of interest to ensure the data would be from the best available sources.

This basic research should be continued to find expanded databases that might have enough valid sources to provide constants to allow the actual regression analysis of these same two conflicts or even other more current conflicts.

Additional research should explore the expert system/artificial intelligence avenue to take advantage of the advances in computer technology. Both expert systems and artificial intelligence designs will have to put great emphasis on defining who the experts are and what databases that will be used in conjunction with the expert knowledge in order to provide predictions.

Chapter Summary

This final chapter summarized the research experiment, discussed the findings of the data analysis, identified the major limiting factor of the experiment, who should use the model and under what circumstances, and finally where additional research could be done using Azar's basic prediction model.

Appendix A: World Event Interaction Survey (WEIS) Code

1. YIELD

- 011 Surrender, yield to order, submit to arrest, etc.
- 012 Yield position; retreat; evacuate
- 013 Admit wrongdoing; retract statement

2. COMMENT

- 021 Explicit decline to comment
- 022 Comment on situation - pessimistic
- 023 Comment on situation - neutral
- 024 Comment on situation - optimistic
- 025 Explain policy or future position

3. CONSULT

- 031 Meet with; at neutral site; or send note; stay in same place
- 032 Visit; go to; leave country
- 033 Receive visit; host

4. APPROVE

- 041 Praise, hail, applaud, condolences, ceremonial greetings, thanks
- 042 Endorse others policy or position, give verbal support

5. PROMISE

- 051 Promise own policy support
- 052 Promise material support
- 053 Promise other future support action
- 054 Assure; reassure

6. GRANT

- 061 Express regret; apologize
- 062 Give state invitation
- 063 Grant asylum
- 064 Grant privilege, diplomatic recognition; de facto relations, etc.
- 065 Suspend negative sanctions; truce
- 066 Release and/or return persons or property

7. REWARD

- 071 Extend economic aid (gift and/or loan)
- 072 Extend military assistance; joint military exercises
- 073 Give other assistance

8. AGREE

- 081 Make substantive agreement
- 082 Agree to future action or procedure; agree to meet, to negotiate; accept state invitation

- 9. REQUEST
 - 091 Ask for information
 - 092 Ask for policy assistance; seek
 - 093 Ask for material assistance
 - 094 Request action; call for; ask for asylum
 - 095 Entreat; plead for; appeal to; help
- 10. PROPOSE
 - 101 Offer proposal
 - 102 Urge or suggest action or policy
- 11. REJECT
 - 111 Turn down proposal; reject protest demand, threat, etc.
 - 112 Refuse; oppose; refuse to allow; exclude
- 12. ACCUSE
 - 121 Charge; criticize; blame; disapprove
 - 122 Denounce; denigrate; abuse; condemn
- 13. PROTEST
 - 131 Make complaint (not formal)
 - 132 Make formal complaint or protest
- 14. DENY
 - 141 Deny an accusation
 - 142 Deny an attributed policy, action, role, or position
- 15. DEMAND
 - 150 Issue order or command, insist; demand compliance, etc.
- 16. WARN
 - 160 Give warning
- 17. THREATEN
 - 171 Threat without specific negative sanctions
 - 172 Threat with specific non-military negative sanctions
 - 173 Threat with force specified
 - 174 Ultimatum; threat with negative sanctions and time limit specified
- 18. DEMONSTRATE
 - 181 Non-military demonstration; walk out on; boycott
 - 182 Armed force mobilization, exercise, and/or display
- 19. REDUCE RELATIONSHIP (as Negative Sanction)
 - 191 Cancel or postpone planned event
 - 192 Reduce routine international activity; recall officials, etc.
 - 193 Reduce or suspend aid or assistance
 - 194 Halt negotiations
 - 195 Break diplomatic relations

20. EXPEL

- 201 Order personnel out of country; deport
- 202 Expel organization or group

21. SEIZE

- 211 Seize position or possessions
- 212 Detain or arrest person(s)

22. FORCE

- 221 Non-injury destructive act, bomb with no one hurt
- 222 Non-military injury-destruction
- 223 Military engagement

Appendix B
Cross Referencing WEIS Data to Azar's 13-Point Scale

Azar's Scale	WEIS Scale
	1. <u>YIELD</u>
13	011 Surrender, yield to order, submit to arrest, etc.
13	012 Yield position; retreat; evacuate
06	013 Admit wrongdoing; retract statement
	2. <u>COMMENT</u>
07	021 Explicit decline to comment
08	022 Comment on situation - pessimistic
07	023 Comment on situation - neutral
06	024 Comment on situation - optimistic
06	025 Explain policy or future position
	3. <u>CONSULT</u>
06	031 Meet with; at neutral site; or send note; stay in same place
06	032 Visit; go to; leave country
06	033 Receive visit; host
	4. <u>APPROVE</u>
05	041 Praise, hail, applaud, condolences, ceremonial greetings, thanks
05	042 Endorse others policy or position, give verbal support
	5. <u>PROMISE</u>
04	051 Promise own policy support
04	052 Promise material support
04	053 Promise other future support action
04	054 Assure; reassure
	6. <u>GRANT</u>
06	061 Express regret; apologize
06	062 Give state invitation
05	063 Grant asylum
05	064 Grant privilege, diplomatic recognition; de facto relations, etc.
05	065 Suspend negative sanctions; truce
05	066 Release and/or return persons or property

- 03 7. REWARD
 - 071 Extend economic aid (gift and/or loan)
 - 03 072 Extend military assistance; joint military exercises
 - 03 073 Give other assistance
- 02 8. AGREE
 - 081 Make substantive agreement
 - 04 082 Agree to future action or procedure; agree to meet, to negotiate; accept state invitation
- 05 9. REQUEST
 - 091 Ask for information
 - 05 092 Ask for policy assistance; seek
 - 05 093 Ask for material assistance
 - 06 094 Request action; call for; ask for asylum
 - 06 095 Entreat; plead for; appeal to; help
- 06 10. PROPOSE
 - 101 Offer proposal
 - 06 102 Urge or suggest action or policy
- 06 11. REJECT
 - 111 Turn down proposal; reject protest demand, threat, etc.
 - 06 112 Refuse; oppose; refuse to allow; exclude
- 08 12. ACCUSE
 - 121 Charge; criticize; blame; disapprove
 - 08 122 Denounce; denigrate; abuse; condemn
- 08 13. PROTEST
 - 131 Make complaint (not formal)
 - 08 132 Make formal complaint or protest
- 08 14. DENY
 - 141 Deny an accusation
 - 08 142 Deny an attributed policy, action, role, or position
- 11 15. DEMAND
 - 150 Issue order or command, insist; demand compliance, etc.
- 08 16. WARN
 - 160 Give warning

17. **THREATEN**
08 171 Threat without specific negative
sanctions
08 172 Threat with specific non-military
negative sanctions
08 173 Threat with force specified
08 174 Ultimatum; threat with negative
sanctions and time limit
specified
18. **DEMONSTRATE**
08 181 Non-military demonstration; walk
out on; boycott
09 182 Armed force mobilization,
exercise, and/or display
19. **REDUCE RELATIONSHIP** (as Negative
Sanction)
08 191 Cancel or postpone planned event
08 192 Reduce routine international
activity; recall officials, etc.
08 193 Reduce or suspend aid or
assistance
08 194 Halt negotiations
08 195 Break diplomatic relations
20. **EXPEL**
12 201 Order personnel out of country;
deport
12 202 Expel organization or group
21. **SEIZE**
12 211 Seize position or possessions
12 212 Detain or arrest person(s)
22. **FORCE**
13 221 Non-injury destructive act, bomb
with no one hurt
13 222 Non-military injury-destruction
13 223 Military engagement

Appendix C: Key to Data Codes

1. The data codes used in this thesis are as follows:

Example: 800411 630 150 645 000 013

Where: 80 is 1980

04 is April

11 is the eleventh day

630 is the country code for Iran

150 is the action, from the WEIS scale,
that Iran took against Iraq

645 is the country code for Iraq

000 is not used

013 is the action, from the Azar scale,
that Iran took against Iraq

2. The four country codes that are used in this database are:

160 for Argentina

200 for Great Britain

630 for Iran

645 for Iraq

Appendix D: Data for Argentina

800401 160 000 200 000 007 NO DATA AVAILABLE
800501 160 000 200 000 007 NO DATA AVAILABLE
800601 160 000 200 000 007 NO DATA AVAILABLE
800701 160 000 200 000 007 NO DATA AVAILABLE
800801 160 000 200 000 007 NO DATA AVAILABLE
800901 160 000 200 000 007 NO DATA AVAILABLE
801001 160 000 200 000 007 NO DATA AVAILABLE
801101 160 000 200 000 007 NO DATA AVAILABLE
801201 160 000 200 000 007 NO DATA AVAILABLE
810101 160 000 200 000 007 NO DATA AVAILABLE
810201 160 000 200 000 007 NO DATA AVAILABLE
810301 160 000 200 000 007 NO DATA AVAILABLE
810401 160 000 200 000 007 NO DATA AVAILABLE
810501 160 000 200 000 007 NO DATA AVAILABLE
810601 160 000 200 000 007 NO DATA AVAILABLE
810701 160 000 200 000 007 NO DATA AVAILABLE
810801 160 000 200 000 007 NO DATA AVAILABLE
810901 160 000 200 000 007 NO DATA AVAILABLE
811001 160 000 200 000 007 NO DATA AVAILABLE
811101 160 000 200 000 007 NO DATA AVAILABLE
811201 160 000 200 000 007 NO DATA AVAILABLE
820101 160 000 200 000 007 NO DATA AVAILABLE
820201 160 000 200 000 007 NO DATA AVAILABLE
820301 160 000 200 000 007 NO DATA AVAILABLE

NOTE: THE 1990 WORLD ALMANAC LISTS APRIL 2, 1982 AS THE OFFICIAL START OF OPEN WARFARE BETWEEN ARGENTINA AND GREAT BRITAIN.

820402 160 211 200 000 012 ARGENTINA SEIZES THE FALKLAND ISLANDS.
820402 160 223 200 000 013 ARGENTINA TROOPS BATTLE A SMALL DETACHMENT OF BRITISH MARINES ON THE FALKLAND ISLANDS.
820403 160 111 200 000 006 ARGENTINA ANNOUNCES THAT IT WILL NOT RETREAT FROM ITS SEIZURE OF THE FALKLAND ISLANDS.
820403 160 195 200 000 008 ARGENTINA BREAKS DIPLOMATIC RELATIONS WITH BRITAIN.
820403 160 201 200 000 012 ARGENTINA ORDERS BRITISH DIPLOMATS TO LEAVE ARGENTINA
820404 160 223 200 000 013 ARGENTINA OVERRUNS THE LAST BRITISH UNIT IN THE FALKLAND ISLANDS AREA.
820404 160 173 200 000 008 ARGENTINA PRS GALTIERI MAKES IT CLEAR THAT IF BRITAIN ATTACKS THE ARGENTINE PEOPLE, ARGENTINA WILL PRESENT BATTLE.
820404 160 150 200 000 011 ARGENTINA ISSUES STIFF RULES FOR THE RESIDENTS OF THE FALKLAND ISLANDS.
820405 160 212 200 000 012 THE ARGENTINE MILITARY ANNOUNCES THE RECENT CAPTURE OF SEVEN BRITISH ROYAL MARINES ON THE FALKLAND ISLANDS.

820405 160 025 200 000 006 THE ARGENTINE GVT ANNOUNCES THAT IT IS SENDING EDUCATION, WELFARE AND LEGAL EXPERTS TO THE FALKLANDS TO BEGIN ADAPTING THE ISLANDERS TO ARGENTINE SYSTEMS.

820405 160 025 200 000 006 THE ARGENTINE MILITARY AUTHORITIES ANNOUNCE THAT THEY ARE PREPARING FOR A POSSIBLE ATTACK BY ABOUT 40 BRITISH SHIPS

820407 160 021 200 000 007 ARGENTINE FM OFFICIALS DECLINE TO RESPOND TO THE BRITISH ANNOUNCEMENT THAT BRITAIN WILL SINK ANY ARGENTINE SHIPS WITHIN 200 MILES OF THE FALKLANDS.

820408 160 182 200 000 009 ARGENTINA CONTINUES TO SEND TROOPS TO THE FALKLANDS.

820408 160 023 200 000 007 ARGENTINA FM MENDEZ SAYS THE DANGER OF WAR WITH BRITAIN IS FADING AND THAT HE IS VERY OPTIMISTIC ABOUT THE CHANCES OF A PEACEFUL SETTLEMENT OF THE FALKLANDS CRISIS.

820408 160 173 200 000 008 ARGENTINA THREATENS TO SINK ANY BRITISH SHIPS ENTERING THE 200 MILE ZONE AROUND THE FALKLANDS.

820408 160 112 200 000 006 ARGENTINA REFUSES TO WITHDRAW ITS TROOPS FROM THE FALKLANDS UNTIL BRITAIN RECOGNIZES ARGENTINE SOVEREIGNTY OVER THE ISLANDS.

820409 160 150 200 000 011 ARGENTINA'S FOREIGN MINISTRY DEMANDS FROM BRITAIN THE SOVEREIGNTY AND ADMINISTRATIVE CONTROL OF THE FALKLAND ISLANDS.

820409 160 025 200 000 006 ARGENTINA'S DM FRUGOLI STATES THAT ARGENTINA WILL MEET ANY BRITISH NAVAL BLOCKADE WITH "ENERGY, DECISIVENESS, AND THE SPIRIT OF SACRIFICE."

820409 160 121 200 000 008 ARGENTINE FM MENDEZ CHARGES THAT THE BRITISH ATTITUDE OVER THE FALKLAND ISLANDS IS "RIDICULOUS" BECAUSE BRITAIN HAS IGNORED THE ISLANDS UNTIL NOW.

820410 160 160 200 000 008 ARGENTINE PRS GALTIERI WARNS THAT ARGENTINA WILL FIGHT IF PROVOKED BY BRITAIN.

820411 160 023 200 000 007 ARGENTINE OFFICIALS STATE THAT A SETTLEMENT WITH BRITAIN ON THE FALKLAND ISLANDS DOES NOT SEEM LIKELY ACCORDING TO THE PACKAGE PROPOSED BY USA SST HAIG.

820413 160 160 200 000 008 THE ARGENTINE GVT WARNS BRITAIN IT WILL GO TO WAR OVER THE FALKLANDS BEFORE IT SURRENDERS ITS SOVEREIGNTY.

820414 160 182 200 000 009 ARGENTINA SENDS TWO COAST GUARD GUNBOATS INSIDE THE 200-MILE BRITISH NAVAL BLOCKADE OF THE FALKLAND ISLANDS.

820416 160 212 200 000 012 ARGENTINA ARRESTS THREE BRITISH JOURNALISTS ON SUSPICION OF SPYING.

820418 160 025 200 000 006 ARGENTINA SAYS IT WILL CONTINUE TO WORK FOR A PEACEFUL SOLUTION TO THE FALKLAND ISLANDS CRISIS.

820419 160 101 200 000 006 ARGENTINA PROPOSES A PLAN FOR JOINT BRITISH-ARGENTINE RULE OF THE FALKLAND ISLANDS WHICH WILL CONVERT TO ARGENTINE RULE AFTER SIX MONTHS.

820420 160 066 200 000 005 ARGENTINA RELEASES A GROUP OF
BRITISH MARINES CAPTURE DURING THE APRIL 2 SEIZURE OF THE
FALKLAND ISLANDS.

820421 160 182 200 000 009 ARGENTINE MILITARY JETS FLY OVER
THE BRITISH NAVAL FLEET NEAR THE FALKLAND ISLANDS.

820421 160 142 200 000 008 THE ARGENTINE GVT DENIES THAT ITS
MILITARY JETS FLEW OVER THE BRITISH NAVAL FLEET NEAR THE
FALKLAND ISLANDS.

820422 160 025 200 000 006 ARGENTINE PRS GALTIERI SAYS HE
STILL WANTS TO COMMUNICATE WITH BRITAIN CONCERNING THE
FALKLAND ISLANDS.

820423 160 160 200 000 008 ARGENTINE PRS GALTIERI WARNS
BRITAIN THAT SOVEREIGNTY OVER THE FALKLANDS IS NOT
NEGOTIABLE.

820423 160 054 200 000 004 ARGENTINE PRS GALTIERI ASSURES
BRITAIN THAT AS LONG A TALKS CONTINUE OVER THE FALKLAND
ISLANDS, THERE COULD BE A SETTLEMENT.

820425 160 223 200 000 013 ARGENTINA AND BRITAIN EXCHANGE
FIGHTING ON THE REMOTE SOUTH ATLANTIC ISLAND OF SOUTH
GEORGIA.

820425 160 121 200 000 008 ARGENTINA CHARGES THAT THE
BRITISH ATTACK ON THE SOUTH GEORGIA ISLAND HAS TERMINATED
ALL NEGOTIATIONS.

820425 160 012 200 000 013 BRITAIN ANNOUNCES THAT ARGENTINA
HAS SURRENDERED GRYTVIKEN TO THE BRITISH AFTER A TWO-HOUR
BATTLE.

820425 160 141 200 000 008 ARGENTINA DENIES HAVING
SURRENDERED GRYTVIKEN TO BRITAIN.

820426 160 012 200 000 013 ARGENTINA YIELDS TO BRITAIN AND
ANNOUNCES IT WILL SEEK TO REGAIN SOUTH GEORGIA ISLAND FROM
BRITAIN.

820428 160 212 200 000 012 THE ARGENTINE GVT REFUSES BAIL
FOR 3 BRITISH NEWSPAPERMEN ARRESTED IN ARGENTINA AND ACCUSED
OF ESPIONAGE.

820429 160 172 200 000 008 ARGENTINA WARNS BRITAIN THAT IF
IT CROSSES THE 200-MILE BLOCKADE AROUND THE FALKLAND
ISLANDS, IT WILL BE DEALT WITH ACCORDINGLY.

820429 160 121 200 000 008 ARGENTINE OFFICIALS ON THE
FALKLAND ISLANDS ANNOUNCE THAT THEY EXPECT A BRITISH ATTACK
AT ANY MOMENT.

820429 160 182 200 000 009 ARGENTINE OFFICIALS INFORM
BRITAIN THAT ALL TROOPS ON THE FALKLAND ISLANDS ARE ON
"TOTAL ALERT."

820429 160 150 200 000 011 ARGENTINE OFFICIALS REITERATE TO
BRITAIN THEIR DEMAND FOR SOVEREIGNTY OF THE FALKLAND
ISLANDS.

820501 160 223 200 000 013 BRITAIN AND ARGENTINA ENGAGE IN A
MAJOR AIR BATTLE AROUND THE FALKLAND ISLANDS.

820501 160 223 200 000 013 BRITAIN AND ARGENTINA ENGAGE IN A
MAJOR NAVAL BATTLE AROUND THE FALKLAND ISLANDS.

820501 160 122 200 000 008 ARGENTINE PRS GALTIERI DENOUNCES
THE USA AND BRITAIN.

820501 160 160 200 000 008 ARGENTINE PRS GALTIERI WARNS
 BRITAIN OF MORE FIGHTING
 820502 160 221 200 000 013 ARGENTINA REPULSES THREE BRITISH
 ATTEMPTS TO LAND TROOPS ON THE FALKLAND ISLANDS.
 820504 160 223 200 000 013 ARGENTINE FORCES SET THE BRITISH
 DESTROYER SHEFFIELD ON FIRE AND SHOOT DOWN A BRITISH PLANE.
 820504 160 223 200 000 013 ARGENTINA AND BRITAIN RESUME
 FIGHTING OVER THE FALKLANDS AIRSTRIP NEAR STANLEY.
 820505 160 031 200 000 006 THE USA, PERU, BRITAIN AND
 ARGENTINA MEET TO DISCUSS THE FALKLAND ISLANDS SITUATION.
 820506 160 150 200 000 011 ARGENTINA REPEATS ITS DEMAND OF
 BRITAIN FOR SOVEREIGNTY OF THE FALKLAND ISLANDS.
 820507 160 160 200 000 008 ARGENTINA WARNS IT WILL RESPOND
 TO THE RECENT EXTENSION OF THE BRITISH BLOCKADE OF THE
 FALKLAND ISLANDS.
 820507 160 112 200 000 006 ARGENTINA REJECTS THE BRITISH
 EXTENSION OF THE BLOCKADE OF THE FALKLAND ISLANDS BY STATING
 BRITAIN DOES NOT POSSESS THE MILITARY TO ENFORCE IT.
 820508 160 112 200 000 006 ARGENTINE SPOKESMEN SAY THAT
 ARGENTINA HAS RESUMED RESUPPLYING ITS TROOPS ON THE FALKLAND
 ISLANDS BY AIR AND THAT ITS FORCES WERE IGNORING THE
 BLOCKADE OF THE ARGENTINE COAST ANNOUNCED BY BRITAIN.
 820508 160 121 200 000 008 ARGENTINE SPOKESMEN ASSERT THAT
 BRITAIN DOES NOT HAVE THE CAPABILITY TO ENFORCE THE
 FALKLANDS BLOCKADE.
 820509 160 101 200 000 006 ARGENTINA EXPRESSES ITS
 WILLINGNESS TO WITHDRAW ITS FORCES FROM THE FALKLAND ISLANDS
 WITHOUT A FIRM COMMITMENT FOR BRITAIN ON THE FALKLAND'S
 SOVEREIGNTY.
 820510 160 012 200 000 013 ARGENTINA ANNOUNCES THAT IT NO
 LONGER WILL DEMAND SOVEREIGNTY OF THE FALKLANDS AS A PRETEXT
 TO NEGOTIATIONS WITH BRITAIN.
 820510 160 094 200 000 006 ARGENTINA CALLS FOR THE
 WITHDRAWAL OF BRITISH TROOPS FROM THE FALKLAND ISLANDS IN
 RETURN FOR THE ARGENTINE "NON-SOVEREIGNTY" TERMS FOR
 NEGOTIATIONS.
 820511 160 025 200 000 006 ARGENTINA AND BRITAIN ANNOUNCE
 THEY ARE MOVING CLOSER TO A SETTLEMENT FOR THE FALKLAND
 ISLANDS.
 820512 160 223 200 000 013 ARGENTINA AND BRITAIN CONTINUE
 AIR BATTLES OVER THE FALKLAND ISLANDS.
 820513 160 121 200 000 008 ARGENTINA CHARGES THAT BRITAIN
 WILL INVADE THE FALKLAND ISLANDS ON MONDAY IF NO AGREEMENT
 IS REACHED.
 820515 160 121 200 000 008 ARGENTINA BLAMES BRITAIN FOR THE
 DELAY IN THE TALKS A THE UN CONCERNING THE FALKLAND ISLANDS.
 820515 160 023 200 000 007 ARGENTINA EXPRESSES HOPE THAT THE
 RECALL OF BRITISH AMB PARSONS FROM THE FALKLANDS
 NEGOTIATIONS WILL PRODUCE A CHANGE IN THE BRITISH POSITION.
 820515 160 025 200 000 006 ARGENTINA STATES THAT IT WILL NOT
 BE THE COUNTRY TO HALT THE ARGENTINA-BRITAIN DISCUSSIONS ON
 THE FALKLANDS.

820516 160 121 200 000 008 ARGENTINA CRITICIZES THE BRITISH
 DELAY IN THE NEGOTIATIONS OVER THE FALKLANDS AT THE UN.
 820517 160 025 200 000 006 ARGENTINE LEADER GALTIERI SAYS HE
 STILL HOPES FOR PEACE WITH BRITAIN IN THE SOUTH ATLANTIC.
 820518 160 031 200 000 006 ARGENTINE AND BRITISH OFFICIALS
 MEET AT THE UN.
 820518 160 121 200 000 008 ARGENTINA ACCUSES BRITAIN OF
 HARDENING ITS POSITION AT THE TALKS CONCERNING THE FALKLAND
 ISLANDS.
 820519 160 082 200 000 004 ARGENTINA AND BRITAIN AGREE TO
 CONTINUE TALKS AT THE UN FOR A FEW MORE DAYS.
 820519 160 121 200 000 008 ARGENTINA ACCUSES BRITAIN OF NOT
 WANTING TO NEGOTIATE OVER THE FALKLAND ISLANDS.
 820520 160 121 200 000 008 ARGENTINA ACCUSES BRITAIN OF
 WANTING TO RETURN TO COLONIAL RULE IN THE FALKLANDS.
 820521 160 223 200 000 013 ARGENTINE FORCES DEFEND AGAINST A
 BRITISH ATTACK ON THE FALKLAND ISLANDS.
 820521 160 012 200 000 013 ARGENTINA CONCEDES THAT BRITAIN
 HAS GAINED A BEACHHEAD ON THE EAST FALKLAND ISLAND.
 820521 160 121 200 000 008 BRITAIN AND ARGENTINA BLAME EACH
 OTHER FOR THE FAILURE OF THE UN MISSION ON THE FALKLAND
 ISLANDS.
 820522 160 223 200 000 013 ARGENTINE FORCES SINK BRITISH
 FRIGATE ARDENT DURING INTENSIVE AIR RAIDS IN THE FALKLAND
 ISLANDS.
 820522 160 212 200 000 012 ARGENTINE FORCES CLAIM THAT
 RECENTLY LANDED BRITISH TROOPS HAVE BEEN CUT OFF WITH HEAVY
 CASUALTIES SUFFERED AND THE LOSS OF AT LEAST 2 BRITISH
 WARSHIPS, AND 5 AIRCRAFT.
 820522 160 223 200 000 013 ARGENTINE FORCES CONTINUE TO
 FIGHT BRITISH FORCES WHO HAVE ESTABLISHED A BEACHHEAD ON
 EAST FALKLAND ISLAND.
 820522 160 012 200 000 013 ARGENTINE PRS GALTIERI CONCEDES
 THAT THE BRITISH HAVE SUCCESSFULLY GAINED A FOOTHOLD ON EAST
 FALKLAND ISLAND.
 820522 160 121 200 000 008 ARGENTINE PRS GALTIERI CRITICIZES
 BRITISH PM THATCHER SAYING THAT THE BLOODSHED IN THE
 FALKLAND ISLANDS IS THE RESPONSIBILITY OF "MRS. NO."
 820522 160 095 200 000 006 ARGENTINE PRS GALTIERI APPEALS TO
 BRITAIN TO RESUME TALKS ON A POSSIBLE SOLUTION FOR THE
 FALKLAND ISLANDS CRISIS.
 820522 160 121 200 000 008 THE ARGENTINE MILITARY COMMAND
 SAYS THAT ACTIONS TAKEN BY BRITAIN CLEARLY SHOW THE
 AGGRESSIVE AND INTRANSIGENT ATTITUDE WITH WHICH BRITAIN
 APPROACHES THE CONFLICT WITH THE ARGENTINE REPUBLIC.
 820522 160 121 200 000 008 THE ARGENTINE MILITARY COMMAND
 CHARGES THAT THE BRITISH LANDING ON EAST FALKLAND ISLAND HAS
 UNDERMINED NEGOTIATIONS AND WILL HAVE CRUEL CONSEQUENCES.
 820522 160 025 200 000 006 THE ARGENTINE MILITARY COMMAND
 STATES THAT ARGENTINA IS LOOKING FOR A PEACE THAT IS JUST
 AND HONORABLE.
 820522 160 122 200 000 008 ARGENTINE FM MENDEZ DENOUNCES
 BRITAIN'S "VIOLENT AGGRESSION" IN THE FALKLAND ISLANDS.

820523 160 223 200 000 013 ARGENTINE AND BRITISH FORCES
FIGHT ON EAST FALKLAND ISLAND.

820523 160 025 200 000 006 ARGENTINA SAYS IT IS WILLING TO
CONSIDER A CEASE-FIRE WITH BRITAIN AS CALLED FOR BY POPE
JOHN PAUL II.

820524 160 223 200 000 013 ARGENTINA AND BRITAIN CONTINUE
FULL-SCALE FIGHTING IN THE FALKLANDS.

820525 160 094 200 000 006 ARGENTINA REITERATES ITS CALL FOR
A NEGOTIATED SETTLEMENT WITH BRITAIN WITH THE HELP OF UN SG
DE CUELLAR.

820525 160 223 200 000 013 ARGENTINA AND BRITAIN CONTINUE
FIGHTING ON THE FALKLAND ISLANDS.

820526 160 223 200 000 013 ARGENTINE AND BRITISH FORCES
CONTINUE FIGHTING ON THE FALKLANDS, WITH ARGENTINA DOWNING
SEVERAL BRITISH HELICOPTERS

820527 160 223 200 000 013 ARGENTINA FIGHTS NEW BRITAIN
ATTACKS.

820527 160 192 200 000 008 ARGENTINA JAMS THE BRITISH
BROADCASTING CORPORATION'S PROGRAMMING TO THE FALKLAND
ISLANDS.

820528 160 221 200 000 013 BRITAIN ANNOUNCES THAT ARGENTINA
HAS SHOT DOWN A ROYAL AIR FORCE HARRIER JET WHOSE PILOT FELL
BEHIND ARGENTINE LINES

820528 160 223 200 000 013 THE ARGENTINE MILITARY COMMAND
REPORTS THAT ARGENTINE GROUND AND AIR FORCES ARE BATTLING TO
REPEL BRITISH TROOPS TRYING TO SECURE A POSITION IN THE
DARWIN AREA ON EAST FALKLAND ISLAND.

820528 160 023 200 000 007 THE ARGENTINE MILITARY COMMAND
REPORTS THE BRITISH LOSS OF 2 HELICOPTERS AND 1 FRIGATE IN
THE BATTLE FOR DARWIN.

820528 160 121 200 000 008 BRIG. GEN. MENENDEZ, GOVERNOR OF
THE FALKLAND ISLANDS SAYS IF THE RESIDENTS OF THE FALKLAND
ISLANDS DO NOT RECEIVE THE ELEMENTS NECESSARY FOR SURVIVAL,
IT IS EXCLUSIVELY THE FAULT OF BRITAIN.

820529 160 160 200 000 008 ARGENTINA PRS GALTIERI WARNS
BRITAIN THAT ARGENTINA MIGHT SEEK AID FROM OTHER LATITUDES
IN FIGHTING WITH BRITAIN.

820529 160 223 200 000 013 ARGENTINE AND BRITISH FORCES
FIGHT ON GOOSE GREEN, FALKLAND ISLANDS.

820530 160 012 200 000 013 ARGENTINE FORCES RETREAT INTO
STANLEY AS BRITISH FORCES CONTINUE THEIR ASSAULT ON THE
FALKLAND ISLANDS.

Appendix E: Data for Great Britain

800501 200 000 160 000 007 NO DATA AVAILABLE
800601 200 000 160 000 007 NO DATA AVAILABLE
800701 200 000 160 000 007 NO DATA AVAILABLE
800801 200 000 160 000 007 NO DATA AVAILABLE
800901 200 000 160 000 007 NO DATA AVAILABLE
801001 200 000 160 000 007 NO DATA AVAILABLE
801101 200 000 160 000 007 NO DATA AVAILABLE
801218 200 131 160 000 008 UNK/ARG BRITAIN PROTESTS TO
ARGENTINA FOR PLANS FOR OIL EXPLORATION IN THE SOUTH
ATLANTIC WATERS.
810101 200 000 160 000 007 NO DATA AVAILABLE
810201 200 000 160 000 007 NO DATA AVAILABLE
810301 200 000 160 000 007 NO DATA AVAILABLE
810401 200 000 160 000 007 NO DATA AVAILABLE
810501 200 000 160 000 007 NO DATA AVAILABLE
810601 200 000 160 000 007 NO DATA AVAILABLE
810701 200 000 160 000 007 NO DATA AVAILABLE
810801 200 000 160 000 007 NO DATA AVAILABLE
810901 200 000 160 000 007 NO DATA AVAILABLE
811001 200 000 160 000 007 NO DATA AVAILABLE
811101 200 000 160 000 007 NO DATA AVAILABLE
811201 200 000 160 000 007 NO DATA AVAILABLE
820101 200 000 160 000 007 NO DATA AVAILABLE
820201 200 000 160 000 007 NO DATA AVAILABLE
820301 200 000 160 000 007 NO DATA AVAILABLE

NOTE: THE 1990 WORLD ALMANAC LISTS APRIL 2, 1982 AS THE
OFFICIAL START OF OPEN WARFARE BETWEEN ARGENTINA AND GREAT
BRITAIN.

820402 200 223 160 000 013 A SMALL DETACHMENT OF BRITISH
MARINES BATTLE ARGENTINA TROOPS ON THE FALKLAND ISLANDS.
820402 200 195 160 000 008 BRITAIN BREAKS DIPLOMATIC
RELATIONS WITH ARGENTINA.
820402 200 160 160 000 008 BRITAIN WARNS ARGENTINA THAT IT
WAS TAKING APPROPRIATE MILITARY MEASURES TO ASSERT BRITISH
RIGHTS UNDER INTERNATIONAL LAW.
820402 200 182 160 000 009 BRITISH WARSHIPS ARE DISPATCHED
TO THE FALKLAND ISLANDS.
820402 200 122 160 000 008 BRITAIN FM CARRINGTON CONDEMNS
ARGENTINA'S UNPROVOKED AGGRESSION AGAINST THE FALKLAND
ISLANDS.
820402 200 201 160 000 012 BRITAIN ORDERS ALL ARGENTINE
DIPLOMATIC PERSONNEL OUT OF BRITAIN.
820403 200 193 160 000 008 BRITAIN PM THATCHER ANNOUNCES
THAT ARGENTINA'S FINANCIAL ASSETS IN BRITAIN WILL BE FROZEN
AND OTHER ECONOMIC SANCTIONS WILL BE IMPOSED.
820403 200 182 160 000 009 BRITAIN PM THATCHER ORDERS A
LARGE NAVAL TASK FORCE TO THE FALKLAND ISLANDS, RECENTLY
SEIZED BY ARGENTINA.

820404 200 223 160 000 013 THE LAST BRITISH UNIT IN THE
 FALKLAND ISLANDS AREA ENGAGES WITH ARGENTINE FORCES.
 820404 200 173 160 000 008 BRITAIN DEFENSE SECRETARY NOTT
 DECLARES THAT BRITAIN WILL FIGHT IF DIPLOMATIC EFFORTS FAIL
 TO REGAIN THE FALKLAND ISLANDS FOR ARGENTINA.
 820405 200 182 160 000 009 THE LARGEST BRITISH FLEET
 ASSEMBLED SINCE WORLD WAR I SAILS FOR THE FALKLAND ISLANDS.
 820405 200 173 160 000 008 BRITISH DM NOTT SAYS THAT BRITAIN
 WILL "RESTORE BRITISH ADMINISTRATION TO THE FALKLANDS EVEN
 IF WE HAVE TO FIGHT."
 820405 200 122 160 000 008 BRITISH FS CARRINGTON CALLS
 ARGENTINA'S SEIZURE OF THE FALKLANDS A "HUMILIATING
 AFFRONT."
 820405 200 025 160 000 006 BRITISH PM THATCHER HOPES, WITH
 THE HELP OF THE USA AND THE UN, TO PERSUADE ARGENTINA TO
 WITHDRAW FROM THE FALKLAND ISLANDS.
 820405 200 064 160 000 005 BRITAIN SAYS IT WILL ALLOW FOUR
 ARGENTINES TO CONTINUE WORKING AT THE ARGENTINE EMBASSY IN
 LONDON DURING THE FALKLAND ISLANDS DISPUTE.
 820407 200 173 160 000 008 BRITAIN THREATENS TO SINK ANY
 ARGENTINE SHIP THAT COMES WITHIN 200 MILES OF THE FALKLANDS
 AFTER DAWN ON MONDAY.
 820407 200 182 160 000 009 BRITISH SUBMARINE SUPERB ARRIVES
 OFF THE FALKLAND ISLANDS.
 820408 200 112 160 000 006 BRITAIN PM THATCHER SAYS BRITAIN
 WILL NOT NEGOTIATE WITH ARGENTINA ABOUT THE FALKLANDS UNTIL
 ARGENTINA WITHDRAWS ITS TROOPS FROM THE FALKLANDS.
 820409 200 121 160 000 008 BRITISH OFFICIALS EXPRESS CONCERN
 THAT TIME MAY BE RUNNING OUT FOR A PEACEFUL SETTLEMENT WITH
 ARGENTINA OVER THE FALKLAND ISLANDS.
 820409 200 023 160 000 007 BRITISH OFFICIALS STATE THAT USA
 SST HAIG HAS A CHANC TO PERSUADE ARGENTINA TO WITHDRAW ITS
 TROOPS FROM THE FALKLANDS SO NEGOTIATIONS CAN BEGIN BEFORE A
 BRITISH NAVAL BLOCKADE TAKES EFFECT.
 820411 200 172 160 000 008 BRITISH FS PYM REAFFIRMS THAT
 BRITAIN INTENDS TO SINK ANY OF ARGENTINA'S SHIPS WHICH CROSS
 INTO THE 200-MILE ZONE AROUND THE FALKLAND ISLANDS.
 820411 200 111 160 000 006 BRITISH FS PYM REJECTS THE CALL
 FOR BRITAIN TO RECALL THE FLEET IN RETURN FOR ARGENTINA'S
 PROMISE TO EVACUATE TROOPS FROM THE FALKLAND ISLANDS.
 820414 200 160 160 000 008 BRITISH PM THATCHER WARNS
 ARGENTINA NOT TO CROSS THE 200-MILE LIMIT IMPOSED BY BRITAIN
 AROUND THE FALKLANDS.
 820414 200 025 160 000 006 BRITISH PM THATCHER STATES THAT
 BRITAIN WISHES A PEACEFUL SOLUTION WITH ARGENTINA TO THE
 CRISIS OVER THE FALKLAND ISLANDS.
 820414 200 025 160 000 006 BRITISH PM THATCHER SAYS THAT THE
 FIRST STEP TO A SETTLEMENT OVER THE FALKLANDS IS ARGENTINA'S
 WITHDRAWAL FROM THE ISLANDS.
 820414 200 182 160 000 009 BRITAIN ANNOUNCES IT HAS
 STRENGTHENED IT'S NAVAL FORCE NEAR THE FALKLAND ISLANDS BY
 INCREASING ITS NUMBER OF AIRPLANES.

820415 200 023 160 000 007 BRITISH OFFICIALS SAY THEY DOUBT ARGENTINA WILL CHALLENGE THE 200-MILE NAVAL BLOCKADE AROUND THE FALKLANDS.

820417 200 141 160 000 008 BRITAIN DENIES AN ARGENTINE ASSERTION THAT AN AERIAL BLOCKADE OF THE FALKLAND ISLANDS HAS ALREADY BEEN IMPOSED.

820419 200 111 160 000 006 BRITAIN REJECTS THE LATEST PLAN FOR A SETTLEMENT WITH ARGENTINA ON THE FALKLAND ISLANDS.

820421 200 101 160 000 006 BRITAIN PROPOSES A THREE-STAGE PLAN FOR SETTLEMENT OF THE FALKLAND ISLANDS DISPUTE WITH ARGENTINA.

820423 200 182 160 000 009 ADVANCED ELEMENTS OF THE BRITISH BATTLE FLEET MOVE IN CLOSER TO THE ARGENTINE-SEIZED FALKLAND ISLANDS.

820424 200 160 160 000 008 BRITISH FS PYM WARNS ARGENTINA THAT A MILITARY CLASH IS INEVITABLE.

820424 200 142 160 000 008 BRITAIN'S DEFENSE MINISTRY DENIES REPORTS THAT THE ROYAL NAVY HAD LANDED ON SOUTH GEORGIA NEAR ARGENTINA.

820425 200 223 160 000 013 BRITAIN AND ARGENTINA EXCHANGE FIGHTING ON THE REMOTE SOUTH ATLANTIC ISLAND OF SOUTH GEORGIA.

820426 200 160 160 000 008 BRITISH PM THATCHER WARNS ARGENTINA THAT FURTHER FIGHTING IS IMMINENT.

820426 200 094 160 000 006 BRITISH PM THATCHER URGES ARGENTINA TO RESUME NEGOTIATIONS WITH USA SST HAIG.

820426 200 025 160 000 006 BRITISH PM THATCHER REITERATES THAT ARGENTINE TROOPS SHOULD LEAVE THE FALKLANDS BEFORE NEGOTIATIONS CONTINUE.

820427 200 174 160 000 008 BRITISH PM THATCHER ANNOUNCES THAT BRITAIN WILL INVADE THE FALKLAND ISLANDS THIS WEEK IF SUDDEN DIPLOMATIC EFFORTS ARE NOT MADE.

820427 200 025 160 000 006 BRITISH PM THATCHER COMMENTS THAT BRITAIN WANTS A DIPLOMATIC SOLUTION WITH ARGENTINA FOR THE FALKLAND ISLANDS.

820427 200 121 160 000 008 BRITISH OFFICIALS EXPRESS REGRET THAT ARGENTINA HAS REJECTED ANOTHER VISIT BY USA SST HAIG.

820427 200 142 160 000 008 BRITAIN DENIES REPORTS THAT A DETACHMENT OF BRITISH TROOPS HAVE ALREADY LANDED ON THE FALKLAND ISLANDS.

820428 200 174 160 000 008 BRITAIN ANNOUNCES TO ARGENTINA THAT IT WILL ENFORCE A TOTAL SEA AND AIR BLOCKADE AROUND THE FALKLANDS ON FRIDAY.

820428 200 182 160 000 009 BRITAIN ANNOUNCES THAT A SMALL MILITARY UNIT HAS BEEN PUT ASHORE ON THE FALKLAND ISLANDS.

820429 200 023 160 000 007 BRITISH PM THATCHER COMMENTS THAT PEACE FOR THE FALKLAND ISLANDS IS IN THE HANDS OF THE ARGENTINES.

820429 200 102 160 000 006 BRITISH PM THATCHER URGES ARGENTINA TO ACCEPT THE USA PEACE PROPOSALS FOR THE FALKLAND ISLANDS.

820430 200 211 160 000 012 BRITAIN BLOCKS THE AIR AND SEA AROUND THE FALKLAND ISLANDS IN DIRECT CHALLENGE TO ARGENTINA.

820501 200 223 160 000 013 BRITAIN AND ARGENTINA ENGAGE IN A MAJOR NAVAL BATTLE AROUND THE FALKLAND ISLANDS.

820501 200 223 160 000 013 BRITISH BOMBERS ATTACK TWO AIRFIELDS ON THE FALKLANDS

820502 200 160 160 000 008 BRITISH OFFICIALS WARN ARGENTINA OF FURTHER MILITARY ACTIVITY IN THE FALKLAND ISLANDS.

820503 200 023 160 000 007 BRITISH MILITARY SOURCES STATE THAT THEY BELIEVE THE ARGENTINE CRUISER GENERAL BELGRANO HAS SUNK AFTER SUNDAY'S ATTACK BY BRITAIN.

820503 200 160 160 000 008 BRITISH FS PYM WARNS THAT BRITAIN WILL KEEP UP PRESSURE ON ARGENTINA IN ORDER TO FORCE A DISCUSSION OF THE FALKLANDS' SOVEREIGNTY.

820504 200 223 160 000 013 BRITAIN AND ARGENTINA RESUME FIGHTING OVER THE FALKLANDS AIRSTRIIP NEAR STANLEY.

820505 200 031 160 000 006 THE USA, PERU, BRITAIN AND ARGENTINA MEET TO DISCUSS THE FALKLAND ISLANDS SITUATION.

820505 200 150 160 000 011 BRITISH FS PYM REITERATES BRITAIN'S DEMAND THAT THERE WILL BE NO CEASE-FIRE UNTIL ARGENTINA LEAVES THE FALKLANDS.

820505 200 066 160 000 005 BRITAIN FREES ABOUT 150 CAPTURED ARGENTINES FROM SOUTH GEORGIA ISLAND.

820506 200 121 160 000 008 BRITAIN CRITICIZES ARGENTINA FOR REJECTING THE PEACE PLAN PROPOSED BY PERU.

820506 200 023 160 000 007 BRITAIN ANNOUNCES THAT THE NEW ROUND OF NEGOTIATIONS WITH ARGENTINA HAVE FAILED.

820506 200 160 160 000 008 BRITISH PM THATCHER WARNS ARGENTINA THAT IT WILL NOT REFRAIN FROM MILITARY ACTION WHILE SEEKING A DIPLOMATIC SOLUTION TO THE FALKLAND ISLANDS CRISIS.

820507 200 192 160 000 008 BRITISH OFFICIALS EXTEND THE BLOCKADE AROUND THE FALKLAND ISLANDS TO WITHIN 12 MILES OF THE ARGENTINE MAINLAND.

820507 200 121 160 000 008 BRITISH OFFICIALS ACCUSE ARGENTINA OF DIPLOMATIC OBSTRUCTIONISM.

820507 200 094 160 000 006 BRITAIN CALLS FOR ARGENTINA TO NEGOTIATE IN GOOD FAITH WITH BRITAIN

820508 200 182 160 000 009 BRITISH SHIPS AND PLANES PATROL THE NEW WAR ZONE ALONG THE ARGENTINE COAST.

820509 200 223 160 000 013 BRITISH FORCES ATTACK ARGENTINE POSITIONS IN THE FALKLAND ISLANDS.

820511 200 025 160 000 006 BRITAIN AND ARGENTINA ANNOUNCE THEY ARE MOVING CLOSER TO A SETTLEMENT FOR THE FALKLAND ISLANDS.

820511 200 223 160 000 013 BRITISH FORCES SINK AN ARGENTINE SHIP IN THE NARROW WATERS BETWEEN THE FALKLAND ISLANDS.

820512 200 223 160 000 013 BRITAIN AND ARGENTINA CONTINUE AIR BATTLES OVER THE FALKLAND ISLANDS.

820513 200 025 160 000 006 BRITAIN PM THATCHER SAYS THAT BRITAIN SEEKS A PEACEFUL SETTLEMENT FOR THE FALKLAND ISLANDS CRISIS WITH ARGENTINA, NOT A PEACEFUL SELL-OUT.

820513 200 160 160 000 008 BRITAIN FM PYM WARNS ARGENTINA THAT THERE COULD BE AN INCREASE IN FIGHTING ON THE FALKLANDS.

820513 200 041 160 000 005 BRITAIN DIPLOMAT PARSONS ENDORSES AN ARGENTINE CONCESSION ON THE FINAL TALKS THAT WILL DETERMINE THE RULE OF THE FALKLANDS.

820514 200 194 160 000 008 BRITAIN HALTS CEASE-FIRE NEGOTIATIONS WITH ARGENTINA AND UN SG CUELLAR.

820514 200 121 160 000 008 BRITAIN PM THATCHER CHARGES THAT A NEGOTIATED SETTLEMENT WITH ARGENTINA OVER THE FALKLANDS MAY BE UNATTAINABLE.

820514 200 223 160 000 013 BRITAIN CONTINUES AIR ATTACKS ON ARGENTINE CONTROLLED PORT STANLEY, FALKLAND ISLANDS.

820515 200 223 160 000 013 BRITAIN FM OFFICIALS ANNOUNCE A BRITISH RAID ON THE FALKLANDS WHICH DESTROYED ARGENTINE AIR AND MILITARY INSTALLATIONS.

820515 200 025 160 000 006 BRITAIN AMB PARSONS ANNOUNCES HE WILL RETURN TO THE UN ON MONDAY TO RESUME TALKS WITH ARGENTINA.

820516 200 223 160 000 013 BRITISH TROOPS ATTACK DARWIN, A SMALL AREA 50 MILES WEST OF STANLEY, THE CAPITAL OF THE FALKLANDS.

820516 200 160 160 000 008 BRITAIN WARNS ARGENTINA THAT IT COULD BE A MATTER OF DAYS BEFORE IT TAKES MORE DECISIVE MILITARY ACTIONS ON THE FALKLANDS.

820516 200 223 160 000 013 BRITISH FORCES ATTACK TWO ARGENTINE SUPPLY VESSELS IN THE MAIN CHANNEL BETWEEN THE FALKLAND ISLANDS.

820516 200 121 160 000 008 BRITAIN DM NOTT SAYS NEGOTIATIONS WITH ARGENTINA ARE STILL ALIVE, BUT TIME IS NOT ON THE SIDE OF THE NEGOTIATIONS.

820517 200 121 160 000 008 BRITAIN PM THATCHER INFORMS ARGENTINA THAT BRITAIN HAS GONE AS FAR AS IT WILL GO IN NEGOTIATIONS OVER THE FALKLANDS.

820518 200 031 160 000 006 BRITISH AND ARGENTINE OFFICIALS MEET AT THE UN.

820518 200 182 160 000 009 BRITISH FORCES IN THE SOUTH ATLANTIC MOVE INTO ASSAULT FORMATION AROUND THE FALKLAND ISLANDS.

820519 200 082 160 000 004 BRITAIN AND ARGENTINA AGREE TO CONTINUE TALKS AT THE UN FOR A FEW MORE DAYS.

820519 200 121 160 000 008 BRITAIN PM THATCHER CHARGES THAT THE GAP BETWEEN BRITAIN AND ARGENTINA LOOKS GREAT.

820520 200 194 160 000 008 BRITAIN HALTS NEGOTIATIONS WITH ARGENTINA OVER THE FALKLAND ISLANDS.

820520 200 121 160 000 008 BRITAIN PM THATCHER DENOUNCES ARGENTINA FOR ITS DELAYS AND DECEPTIONS IN THE TALKS OVER THE FALKLAND ISLANDS.

820521 200 223 160 000 013 BRITISH FORCES ATTACK THE FALKLAND ISLANDS AND ESTABLISH A BEACHHEAD AT PORT SAN CARLOS.

820521 200 211 160 000 012 BRITISH FORCES ESTABLISH A BEACHHEAD AT PORT SAN CARLOS ON THE FALKLAND ISLANDS.

820521 200 212 160 000 012 BRITAIN ANNOUNCES THAT IT HAS TAKEN ARGENTINE PRISONERS ON THE FALKLAND ISLANDS.

820521 200 121 160 000 008 BRITAIN AND ARGENTINA BLAME EACH OTHER FOR THE FAILURE OF THE UN MISSION ON THE FALKLAND ISLANDS.

820522 200 182 160 000 009 BRITISH REINFORCEMENTS AND WEAPONS POUR ASHORE ON EAS FALKLAND ISLAND PROBING FOR ARGENTINE COUNTER-ATTACKS.

820522 200 223 160 000 013 BRITISH MINISTRY OF DEFENSE ANNOUNCES THAT TWO HARRIER JETS ATTACKED AND SEVERELY DAMAGED AN ARGENTINE PATROL BOAT IN THE WATERS SURROUNDING THE FALKLAND ISLANDS.

820522 200 025 160 000 006 BRITISH DM NOTT SAYS THAT BRITISH FORCES EXPECT FRESH ATTACKS BY ARGENTINE FORCES IN THE NEXT DAY OR SO, BUT THAT BRITAIN IS FIGHTING NOW FROM A SECURE BASE.

820522 200 212 160 000 012 BRITAIN TAKES 9 ARGENTINE PRISONERS DURING THE BRITISH OFFENSIVE ON EAST FALKLAND ISLAND.

820522 200 223 160 000 013 BRITISH FORCES WHO HAVE ESTABLISHED A BEACHHEAD ON EAST FALKLAND ISLAND CONTINUE TO FIGHT ARGENTINE FORCES.

820523 200 223 160 000 013 BRITISH AND ARGENTINE FORCES FIGHT ON EAST FALKLAND ISLAND.

820524 200 223 160 000 013 BRITAIN AND ARGENTINA CONTINUE FULL-SCALE FIGHTING IN THE FALKLANDS.

820525 200 101 160 000 006 BRITAIN INFORMS ARGENTINA THAT THERE CAN BE PEACE IN THE FALKLANDS IF THE ARGENTINE TROOPS ARE REMOVED.

820525 200 223 160 000 013 BRITAIN AND ARGENTINA CONTINUE FIGHTING ON THE FALKLAND ISLANDS.

820525 200 023 160 000 007 BRITAIN DM NOTT ANNOUNCES THAT BRITAIN HAS LOST A NUMBER OF SHIPS AND AIRCRAFT IN RECENT ARGENTINE ATTACKS.

820526 200 025 160 000 006 BRITISH MILITARY FORCES ANNOUNCE THEY ARE READY FOR AN ATTACK ON STANLEY, THE CAPITAL OF THE FALKLAND ISLANDS.

820526 200 223 160 000 013 BRITAIN AND ARGENTINE FORCES CONTINUE FIGHTING ON THE FALKLANDS, WITH ARGENTINA DOWNING SEVERAL BRITISH HELICOPTERS.

820526 200 212 160 000 012 BRITAIN DETAINS AN ARGENTINE COMMANDER ON ASCENSION ISLAND.

820527 200 223 160 000 013 BRITAIN LAUNCHES NEW ATTACKS AGAINST ARGENTINA.

820528 200 211 160 000 012 THE BRITISH DEFENSE MINISTRY ANNOUNCES THE CAPTURE OF DARWIN AND GOOSE GREEN, OVERRUNNING THE SECOND LARGEST ARGENTINE INSTALLATION IN THE FALKLAND ISLANDS.

820528 200 212 160 000 012 THE BRITISH DEFENSE MINISTRY ANNOUNCES THE CAPTURE OF AN UNSPECIFIED NUMBER OF ARGENTINE SOLDIERS IN THE BRITISH TAKING OF DARWIN AND GOOSE GREEN IN THE FALKLAND ISLANDS.

820528 200 223 160 000 013 THE ARGENTINE MILITARY COMMAND
REPORTS THAT ARGENTINE GROUND AND AIR FORCES ARE BATTLING TO
REPEL BRITISH TROOPS TRYING TO SECURE A POSITION IN THE
DARWIN AREA ON EAST FALKLAND ISLAND.
820529 200 223 160 000 013 BRITISH AND ARGENTINE FORCES
FIGHT ON GOOSE GREEN, FALKLAND ISLANDS.
820529 200 212 160 000 012 BRITAIN ANNOUNCES IT HAS CAPTURED
900 ARGENTINE PRISONERS.
820531 200 223 160 000 013 BRITAIN AND ARGENTINE FORCES
FIGHT TO WITHIN 15 MILES OF STANLEY, THE CAPITAL OF THE
FALKLAND ISLANDS.
820531 200 142 160 000 008 BRITAIN DENIES REPORTS THAT
ARGENTINA DESTROYED THE BRITISH SHIP INVINCIBLE.

Appendix F: Data for Iran

780801 630 000 645 000 007 NO DATA AVAILABLE
780901 630 000 645 000 007 NO DATA AVAILABLE
781001 630 000 645 000 007 NO DATA AVAILABLE
781101 630 000 645 000 007 NO DATA AVAILABLE
781201 630 000 645 000 007 NO DATA AVAILABLE
790101 630 000 645 000 007 NO DATA AVAILABLE
790201 630 000 645 000 007 NO DATA AVAILABLE
790301 630 000 645 000 007 NO DATA AVAILABLE
790401 630 000 645 000 007 NO DATA AVAILABLE
790501 630 000 645 000 007 NO DATA AVAILABLE
790601 630 000 645 000 007 NO DATA AVAILABLE
790701 630 000 645 000 007 NO DATA AVAILABLE
790825 630 031 645 000 006 IRAN PM BAZARGAN MEETS WITH IRAQ
AMB TO IRN ALSAMRAA IN TEHERAN TO DISCUSS THE PROBLEM OF
KURDISTAN REBELS WHO ARE FLEEING IRN ACROSS THE IRQ BORDER
KUR
790901 630 000 645 000 007 NO DATA AVAILABLE
791001 630 000 645 000 007 NO DATA AVAILABLE
791101 630 000 645 000 007 NO DATA AVAILABLE
791217 630 212 645 000 012 IRN/IRQ THE IRANIAN GOVERNMENT
ARRESTED 16 IRAQI SCHOOLTEACHERS ON CHARGES OF POSSESSING
EXPLOSIVES.
800101 630 000 645 000 007 NO DATA AVAILABLE
800201 630 000 645 000 007 NO DATA AVAILABLE
800301 630 000 645 000 007 NO DATA AVAILABLE
800411 630 172 645 000 008 IRN/IRQ IRANIAN PRS BANI-SADR
WARNS NEIGHBORING IRAQ THAT IRANIAN FORCES WOULD REPEL ITS
TROOPS AND PURSUE THEM ACROSS THE BORDER IN THE EVENT OF ANY
ATTACK.
800411 630 150 645 000 011 IRN/IRQ IRAN'S PRS BANI-SADR
CALLS ON IRAQI TROOPS TO DESERT AND FOLLOW IRAN'S BRAND OF
ISLAMIC REVOLUTION AS PREACHED BY THE AYATOLLAH KHOMEINI.
800502 630 121 645 000 008 IRN/IRQ IRAN OFFICIALLY LAYS THE
BLAME FOR THE TAKEOVER OF THE IRANIAN EMBASSY IN LONDON ON
THE IRAQI GOVERNMENT.
800601 630 000 645 000 007 NO DATA AVAILABLE
800701 630 000 645 000 007 NO DATA AVAILABLE
800801 630 000 645 000 007 NO DATA AVAILABLE
800916 630 223 645 000 013 IRN/IRQ IRANIAN REPORTS STATE
THAT ARTILLERY FIRE BETWEEN IRAN AND IRAQ CONTINUES TODAY.
800916 630 223 645 000 013 IRN/IRQ IRANIAN PRESS REPORTS
STATE THAT SEVERAL IRAQ BORDER POSTS ARE DESTROYED IN
TODAY'S ARTILLERY FIRE.
800918 630 122 645 000 008 IRN/IRQ IRN DENOUNCES IRQ FOR ITS
VIOLATIONS OF A 1975 BORDER PACT BETWEEN THE TWO COUNTRIES.
800918 630 111 645 000 006 IRN/IRQ IRN REJECTS IRQ CLAIMS ON
MUTUAL BORDER AREAS.
800919 630 223 645 000 013 IRN/IRQ IRN RESISTS THE IRQ
INVASION.

800920 630 182 645 000 009 IRN/IRQ IRN MOBILIZES ITS ARMED FORCES AND CALLS UP SEVERAL THOUSAND RESERVISTS "TO DEFEND THE INTEGRITY OF THE COUNTRY" AS FIGHTING CONTINUES ALONG THE BORDER WITH IRQ.

800920 630 223 645 000 013 IRN/IRQ IRN CONTINUES TO FIGHT ALONG THE BORDER WITH IRQ.

800921 630 223 645 000 013 IRN/IRQ IRN AND IRQ CONTINUE TO FIGHT HEAVILY ALONG THEIR MUTUAL BORDER.

NOTE: THE 1990 WORLD ALMANAC LISTS SEPTEMBER 22, 1980 AS THE OFFICIAL START OF OPEN WARFARE BETWEEN IRAN AND IRAQ.

800922 630 223 645 000 013 IRN/IRQ IRANIAN PRS BANI-SADR ANNOUNCES THAT IRANIAN PLANES STRIKE AT TWO UNIDENTIFIED IRAQI BASES.

800922 630 192 645 000 008 IRN/IRQ TEHERAN RADIO IN IRAN ANNOUNCES THAT IRAN WILL NOT ALLOW ANY MERCHANT SHIPS TO CARRY CARGO TO IRAQI PORTS.

800922 630 122 645 000 008 IRN/IRQ A KEY IRANIAN ISLAMIC MILITANT STATES ON THE STATE RADIO THAT "THE PUPPET AND MERCENARY IRAQI GOVERNMENT HAS STARTED AIR RAIDS AGAINST IRANIAN TERRITORY."

800922 630 122 645 000 008 IRN/IRQ IRANIAN LEADER KHOMEINI CHARGES THE IRAQI PRS HUSSEIN OF BEING SUPPORTED BY THE UNITED STATES.

800922 630 094 645 000 006 IRN/IRQ IRANIAN LEADER KHOMEINI URGES THE IRAQI PEOPLE TO RISE UP AGAINST THEIR PRS HUSSEIN.

800923 630 223 645 000 013 IRN/IRQ IRN TROOPS FIGHT AGAINST INVADING IRQ TROOPS.

800924 630 223 645 000 013 IRN/IRQ IRAN AND IRAQ STRIKE AT EACH OTHER'S OIL INSTALLATIONS AGAIN TODAY.

800925 630 223 645 000 013 IRN/IRQ IRN TROOPS ENGAGE IRQ TROOPS NEAR KHURRAMSHAHR.

800926 630 223 645 000 013 IRN/IRQ IRN DEFENDERS IN ABADAN SHELL IRQ POSITIONS AROUND THE OUTSKIRTS OF THE CITY.

800926 630 141 645 000 008 IRN/IRQ IRN DENIES THAT IRQ AIRCRAFT HAVE ATTACKED THE CITIES OF BASRA, KIRKUK, MOSUL, OR IRBIL.

800927 630 141 645 000 008 IRN/IRQ IRN DENIES THE IRQ CLAIM THAT IRQ HAS SEIZED THE IRN PROVINCE OF KHUZESTAN.

800927 630 122 645 000 008 IRN/IRQ IRN LEADER KHOMEINI CALLS IRQ A COUNTRY OF THUGS AND LIARS.

800927 630 223 645 000 013 IRN/IRQ IRN FIGHTS THE IRQ INVASION FORCE, AND DESTROYS THE IRQ PIPELINE LEADING TO THE MEDITERRANEAN.

800927 630 160 645 000 008 IRN/IRQ IRN LEADER KHOMEINI WARNS IRQ THAT ALL IRN CITIZENS WILL FIGHT TO THE DEATH IF NECESSARY TO REPEL THE IRQ INVADERS.

800927 630 121 645 000 008 IRN/IRQ IRN ACCUSES IRQ OF BEING THE AGGRESSOR IN THE IRN-IRQ WAR.

800927 630 121 645 000 008 IRN/IRQ IRN ACCUSES IRQ PRS HUSSEIN OF BEING AN INTERMEDIARY FOR THE USA CIA.

800928 630 223 645 000 013 IRN/IRQ IRN FORCES BATTLE IRQ INVADERS.

800928 630 111 645 000 006 IRN/IRQ IRN REFUSES TO CONSIDER ANY COMPROMISE OR MEDIATION WITH IRQ IN THE IRN-IRQ CONFLICT.

800928 630 150 645 000 011 IRN/IRQ IRN DEMANDS THAT ALL IRQ SOLDIERS BE WITHDRAWN ACROSS THE IRQ-IRN BORDER.

800929 630 025 645 000 006 IRN/IRQ IRANIAN OFFICIALS VOW TO CARRY ON THE BATTLE WITH IRAQ REGARDLESS OF LOSSES ALONG THE BORDER.

800929 630 111 645 000 006 IRN/IRQ IRAN'S SPEAKER OF THE PARLIAMENT, RAFSANJANI, SAYS TO IRAQ, "THERE IS NO QUESTION OF A CEASE-FIRE FOR US." HE IS RESPONDING TO AN IRAQI CALL FOR A CEASE-FIRE.

800929 630 025 645 000 006 IRN/IRQ A SPECIAL IRANIAN ENVOY WHO IS MEETING WITH INDIA'S PM GANDHI TELLS IRAQ THAT IRAN WILL ACCEPT A CEASE-FIRE IF IRAQ WITHDRAWS ITS FORCES AND AGREES TO RESPECT IRAN'S "TERRITORIAL INTEGRITY."

800929 630 025 645 000 006 IRN/IRQ IRAN'S AMB TO THE SOVIET UNION, MOKRI, ANNOUNCES THAT IRAN WILL ACCEPT A TRUCE WITH IRAQ ONLY IF IRAQI PRS HUSSEIN RESIGNS AND SURRENDERS HIS ARMY TO IRAN.

800930 630 112 645 000 006 IRN/IRQ IRAN'S LEADER KHOMEINI DISMISSES ALL PEACE PROPOSALS FROM IRAQ, DECLARING THAT IRANIANS WILL FIGHT "TO THE END".

800930 630 025 645 000 006 IRN/IRQ IRAN'S LEADER KHOMEINI STATES THAT IRAN WILL FIGHT IRAQ "TO THE END".

800930 630 223 645 000 013 IRN/IRQ IRANIAN BOMBERS RENEW ATTACKS ON THE IRAQI CAPITAL OF BAGHAD.

800930 630 025 645 000 006 IRN/IRQ IRAN'S LEADER KHOMEINI STATES THAT IRAN WILL NOT COMPROMISE WITH IRAQ.

800930 630 121 645 000 008 IRN/IRQ IRAN'S LEADER KHOMEINI SAYS THAT HE WILL NOT NEGOTIATE WITH IRAQ BECAUSE THEY ARE CORRUPT.

800930 630 025 645 000 006 IRN/IRQ IRAN'S LEADER KHOMEINI STATES THAT IRAN MIGHT NEGOTIATE WITH IRAQ IF THEY SURRENDER FOR THE SAKE OF MOSLEMS.

Appendix G: Data for Iraq

780828 645 212 630 000 012 IRAQ AUTHORITIES ARREST AN IRAN
CITIZEN WHO SAYS HE HAD A HAND IN STARTING A MOVIE THEATER
FIRE IN WHICH AT LEAST 377 PEOPLE WERE KILLED IN IRN IRQ
780828 645 066 630 000 005 ACCORDING TO A REP FOR THE IRAQ
INTERIOR MINISTRY IRQ RETURNS AN IRAN CITIZEN, WHO HELPED
START A FIRE WHICH KILLED 377 PEOPLE IN IRN, OVER TO IRN
780901 645 000 630 000 007 NO DATA AVAILABLE
781001 645 000 630 000 007 NO DATA AVAILABLE
781101 645 000 630 000 007 NO DATA AVAILABLE
781201 645 000 630 000 007 NO DATA AVAILABLE
790101 645 000 630 000 007 NO DATA AVAILABLE
790201 645 000 630 000 007 NO DATA AVAILABLE
790301 645 000 630 000 007 NO DATA AVAILABLE
790401 645 000 630 000 007 NO DATA AVAILABLE
790501 645 000 630 000 007 NO DATA AVAILABLE
790601 645 000 630 000 007 NO DATA AVAILABLE
790701 645 000 630 000 007 NO DATA AVAILABLE
790825 645 031 630 000 006 IRAN PM BAZARGAN MEETS WITH IRAQ
AMB TO IRN ALSAMRAA IN TEHERAN TO DISCUSS THE PROBLEM OF
KURDISTAN REBELS WHO ARE FLEEING IRN ACROSS THE IRQ BORDER
KUR
790827 645 121 630 000 008 THE IRAQ GOVT ACCUSES IRAN OF
ARRESTING TWO IRQ MILITARY OBSERVERS DURING A CLASH BETWEEN
IRAN GOVT FORCES AND KURDISTAN REBELS AND SENDING THEM TO
TEHERAN FOR QUESTIONING KUR IRN
790901 645 000 630 000 007 NO DATA AVAILABLE
791001 645 000 630 000 007 NO DATA AVAILABLE
791101 645 000 630 000 007 NO DATA AVAILABLE
791205 645 031 630 000 006 IRAN PM BAZARGAN MEETS WITH IRAQ
791217 645 174 630 000 008 IRQ/IRN THE IRAQI GOVERNMENT
DEMANDED THE RELEASE OF 16 IRAQIS SEIZED BY THE IRANIANS AND
SET A TIME LIMIT OF 48 HOURS.
800101 645 000 630 000 007 NO DATA AVAILABLE
800201 645 000 630 000 007 NO DATA AVAILABLE
800301 645 000 630 000 007 NO DATA AVAILABLE
800406 645 201 630 000 012 IRQ/IRN THE GOVERNMENT OF IRAQ
GIVES AN IRAN DIPLOMAT EXACTLY 24 HOURS IN WHICH TO LEAVE
THE COUNTRY. HE WAS CHARGED WITH SPYING.
800406 645 121 630 000 008 IRQ/IRN THE GOVERNMENT OF IRAQ
CHARGES THAT IRAN IS BEHIND THE SECOND GRENADE ATTACK IN A
WEEK, AN ATTACK THAT KILLED TWO PEOPLE.
800406 645 122 630 000 008 IRQ/IRN THE GOVERNMENT OF IRAQ
CALLS THE IRANIAN REVOLUTIONARY LEADER, AYATOLLAH RUHOLLAH
KHOMEINI, "A RACIST LUNATIC."
800406 645 121 630 000 008 IRQ/IRN THE GOVERNMENT OF IRAQ
ACCUSES AN IRAN DIPLOMAT OF SPYING AND GAVE HIM 24 HOURS IN
WHICH TO LEAVE THE COUNTRY.
800501 645 000 630 000 007 NO DATA AVAILABLE
800625 645 121 630 000 008 IRQ/IRN IRAQI GOVERNMENT-RUN
NEWSPAPERS CARRY AN ARTICLE THAT CONTENDS THAT THE AYATOLLAH

KHOMEINI WAS THE PRODUCT OF AN ISLAMIC REVOLUTION
ENGINEERED, "WRITTEN, AND DIRECTED BY THE C.I.A."

800701 645 000 630 000 007 NO DATA AVAILABLE

800801 645 000 630 000 007 NO DATA AVAILABLE

800916 645 223 630 000 013 IRQ/IRN IRANIAN PRESS REPORTS
THAT ARTILLERY FIRE BETWEEN IRAN AND IRAQ CONTINUES TODAY.

800917 645 192 630 000 008 IRQ/IRN IRAQ ANNOUNCES THAT IT IS
CANCELLING A FIVE YEAR OLD BORDER AGREEMENT WITH IRAN.

800919 645 211 630 000 012 IRQ/IRN IRQ SEIZES 90 SQUARE
MILES OF IRN TERRITORY.

800919 645 223 630 000 013 IRQ/IRN IRQ ATTACKS IRN WITH OVER
10,000 TROOPS.

800919 645 192 630 000 008 IRQ/IRN IRQ CANCELS A BORDER
AGREEMENT WITH IRN.

800919 645 025 630 000 006 IRQ/IRN IRQ INFORMS IRN THAT IT
DOES NOT WANT TO TURN THE PRESENT CONFLICT INTO AN ALL-OUT
WAR.

800920 645 223 630 000 013 IRQ/IRN IRQ CONTINUES TO FIGHT
ALONG THE BORDER WITH IRN.

800921 645 223 630 000 013 IRQ/IRN IRQ SINKS FIVE IRN
GUNBOATS, AND HEAVY FIGHTING CONTINUES ALONG THE BORDER.

800921 645 121 630 000 008 IRQ/IRN IRQ ACCUSES IRN OF
BLOCKING THE STRAITS SOUTH OF ABADAN.

NOTE: THE 1990 WORLD ALMANAC LISTS SEPTEMBER 22, 1980 AS
THE OFFICIAL START OF OPEN WARFARE BETWEEN IRAN AND IRAQ.

800922 645 223 630 000 013 IRQ/IRN IRAQI WARPLANES STRIKE AT
TEN IRANIAN AIRFIELDS, INCLUDING TEHERAN'S.

800922 645 121 630 000 008 IRQ/IRN THE OFFICIAL IRAQI NEWS
AGENCY STATES THAT IRAN HAS "EXPANDED THE CIRCUMFERENCE OF
THE MILITARY CONFLICT (BETWEEN IRAQ AND IRAN) AND HAS
BROUGHT THE SITUATION TO TOTAL WAR".

800923 645 223 630 000 013 IRQ/IRN IRQ FORCES BOMB AND
DESTROY THE IRN OIL CENTER AT ABADAN, ASWELL AS FIGHTING IRN
ARMED FORCES.

800924 645 223 630 000 013 IRQ/IRN IRAQ AND IRAN STRIKE AT
EACH OTHER'S OIL INSTALLATIONS AGAIN TODAY.

800924 645 023 630 000 007 IRQ/IRN IRAQI DM KHAIRALLAH
STATES TO IRAN THAT "WHETHER IT HAS BEEN DECLARED OR NOT, IT
IS, IN FACT, WAR."

800924 645 160 630 000 008 IRQ/IRN IRAQ WARNS IRAN THAT IT
WILL FACE INCREASING IRAQI ATTACKS IF IT DOES NOT HALT THE
BOMBING INTO IRAQ.

800924 645 150 630 000 011 IRQ/IRN IRAQI OFFICIALS REPORT
THAT THEY WILL INSIST THAT IRAN GIVE UP THREE ISLANDS THAT
GUARD THE ENTRANCE TO THE STRAITS OF HORMUZ AS A CONDITION
TO A CEASE-FIRE.

800925 645 223 630 000 013 IRQ/IRN IRQ TROOPS ADVANCE INTO
IRN, FIGHTING WITH IRN FORCES NEAR KHURRAMSHAHR.

800925 645 211 630 000 012 IRQ/IRN IRQ SEIZES THE CITY OF
KHURRAMSHAHR FROM IRN.

800925 645 150 630 000 011 IRQ/IRN IRQ SETS SEVERAL DEMANDS AS THE PRECONDITIONS FOR PEACE WITH IRN.

800926 645 223 630 000 013 IRQ/IRN IRQ TROOPS BESIEGE THE CITY OF ABADAN, SHELLING THE IRN DEFENDERS AND SETTING THE CITY ON FIRE FROM ONE END TO THE OTHER WITH HEAVY ARTILLERY ATTACKS.

800927 645 223 630 000 013 IRQ/IRN IRQ PUSHES ITS MILITARY FORCES INTO THE IRN PROVINCE OF KHUZESTAN.

800927 645 211 630 000 012 IRQ/IRN IRQ SEIZES THE IRN PROVINCE OF KHUZESTAN.

800928 645 101 630 000 006 IRQ/IRN IRQ PRS HUSSEIN OFFERS A CEASE-FIRE PLAN TO IRN.

800928 645 150 630 000 011 IRQ/IRN IRQ PRS HUSSEIN DEMANDS THAT "EVERY INCH OF USURPED ARAB LAND" BE RETURNED BY IRN TO IRQ, INCLUDING THREE ISLANDS IN THE STRAIT OF HORMUZ.

800928 645 025 630 000 006 IRQ/IRN IRQ ANNOUNCES TO IRN THAT IT IS READY TO HOLD DIRECT NEGOTIATIONS WITH IRN.

800928 645 223 630 000 013 IRQ/IRN IRQ ARMORED FORCES MAKE NEW ADVANCES INTO IRN TERRITORY.

800928 645 211 630 000 012 IRQ/IRN IRQ ARMORED UNITS SEIZE NEW AREAS IN IRN.

800929 645 101 630 000 006 IRQ/IRN IRAQ OFFERS IRAN A CEASE-FIRE THROUGH THE UNITED NATIONS WITHOUT MENTION OF CONDITIONS.

800930 645 223 630 000 013 IRQ/IRN IRAQ CONTINUES ATTACKS ON IRANIAN OIL CENTERS.

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13. ABSTRACT (Maximum 200 words) This research determines if Edward E. Azar's Conflict Prediction Model could predict the start of the Iran-Iraq War and/or the start of the Falkland Island War. The research takes 24 months of data and separates the data into two 12 month segments. The first 12 months of data was scaled according to Azar's 13-Point Scale and input into a computer statistical program to produce constants that could be used on the second 12 months of data to try to predict the two wars. The database was the United States Naval Academy's Worldwide Events Interaction Survey (WEIS). The statistical evaluation could not be done because there were not enough data points in the first 12 months of data to provide the constants necessary to make a prediction using the second 12 months of data. The conclusion was that the model may be useful if enough comprehensive data is available to allow statistical analysis, but that expert knowledge by the user is necessary to select the right data to use. Azar's basic model might also be useful in future study by researchers in the area of expert systems.			
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